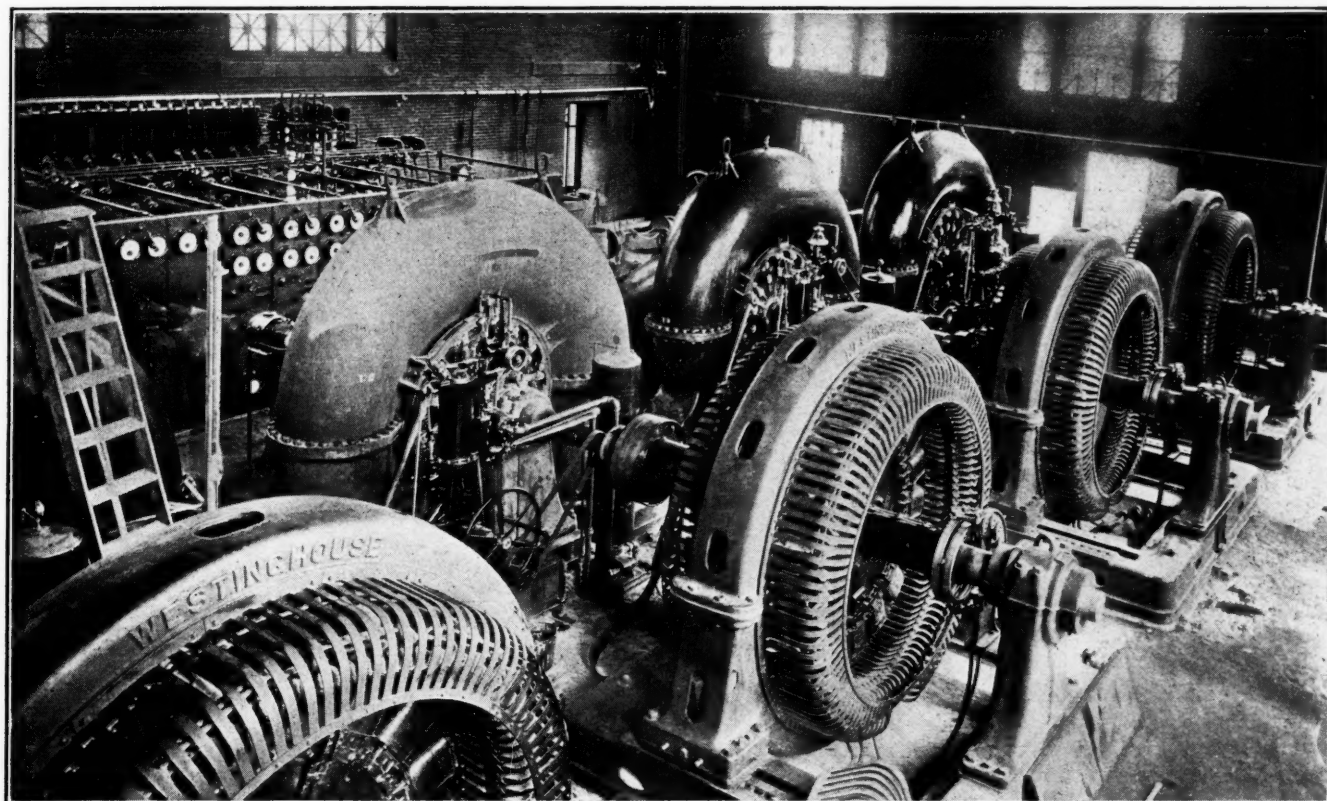


Municipal Journal

VOLUME XXXI

NEW YORK, SEPTEMBER 27, 1911

No. 13



INTERIOR OF POWER HOUSE—1000 KVA GENERATORS

COMMERCIAL POWER FROM WATER WORKS

General Description of Wachusett Reservoir of Metropolitan Water Works—Utilization of Unnecessary Head to Generate Electrical Power—Installation of High Voltage Machinery—Cost and Earning Capacity of Plant

On August 10th of this year, the Metropolitan Water and Sewerage Board of Massachusetts (Boston and vicinity), began delivering to a private corporation electrical energy created by the utilization of an unnecessary head in the conduit supplying water to Boston and the neighboring municipalities. This is believed to be the first instance in this country of a public water supply being used for the development of electrical energy to be sold commercially. Something the same thing is to be done in connection with the Los Angeles supply, but this project has not yet reached much more than the initial stage. Briefly, the decision to develop and in some way dispose of electrical energy in this way was reached because of the fact that the Wachusett reservoir of the Metropolitan supply,

located at the situation most favorable for storage, was found to give a head of 395 feet above Boston's city base, which was approximately 100 feet more than was considered necessary. This 100 feet represented a considerable amount of energy which would ordinarily have been wasted, but which it seemed worth while to try to save. It seems probable that there are many instances throughout the country of excessive head in storage reservoirs, but few if any in which the head between storage and distributing reservoir has been utilized.

The difficulty experienced by several of the suburbs of Boston in obtaining water supplies adequate in either quantity or quality and the advantages which it seemed would unquestionably be obtained by co-operation, led to an investigation of

NOTE.—Photographs of power plant from *Boston Post*.

this subject by the Massachusetts State Board of Health in 1893, a report by the same to the Legislature in 1895 and the enactment by the same Legislature of a bill providing that the Governor should appoint three water commissioners to constitute a Metropolitan Water Board; which board should construct, maintain and operate a system of waterworks to serve a Metropolitan district. This district consisted of the cities of Boston, Chelsea, Everett, Malden, Medford, Newton, Somerville and the towns of Belmont, Hyde Park, Melrose, Revere, Watertown and Winthrop. Under permissive provisions of the act that any other city and town any part of which was within a radius of ten miles of the State House, could unite with those named, the city of Quincy and the towns of Nahant, Arlington, Stoneham, Lexington and Milton were admitted into the district; and under still other provisions water is supplied to the town of Swampscott and a portion of the town of Saugus. This makes nineteen municipalities within the district, the population of those outside of Boston being about 400,000.

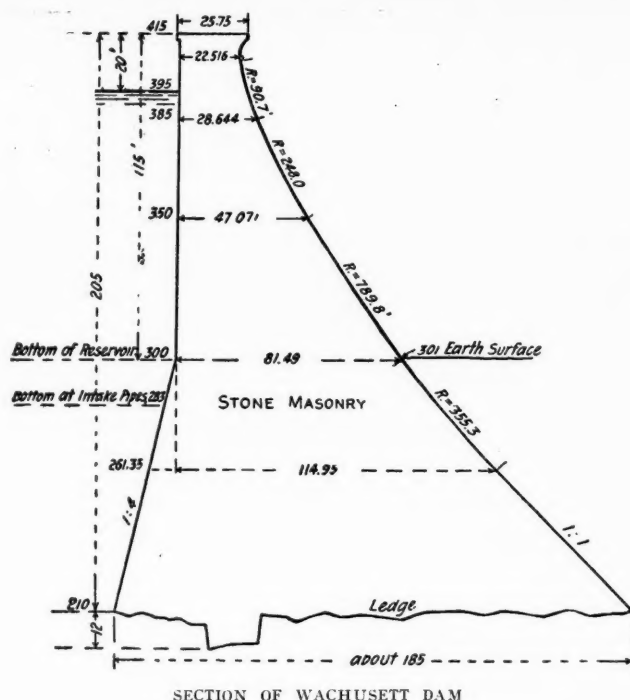
The Metropolitan Water Board was in 1901 combined with the Board of Metropolitan Sewerage Commissioners, and the powers and duties of the two boards vested in a new one known as the Metropolitan Water and Sewerage Board. Mr. Frederic Stearns, as chief engineer of the State Board of Health, had charge of the investigations made in 1893 and 1894, and held the position of chief engineer of the Water Board and of the Water and Sewerage Board from that time until recently, when he was succeeded by Dexter Brackett.

One of the most important features of the work immediately inaugurated by the Water Board was the construction of the Wachusett reservoir, which is located in the towns of Clinton, Boylston and West Boylston and is formed by a dam across the south branch of the Nashua river, about 35 miles west from Boston. In addition to the dam there are two earth dikes, one on either side of the valley a short distance above the main dam.

The river above the dam has a water shed of about 118.32 square miles. The reservoir itself is 8.41 miles long and has an area of 6.56 square miles and a capacity of 63,068 million gallons. The first contract for the removal of soil from the Wachusett reservoir was made July 14, 1897, and the contract work was finally completed in November, 1905. In connection with this reservoir there was constructed, for conveying the water to the Sudbury reservoir, an aqueduct having a capacity of 300 million gallons in 24 hours.

The Wachusett dam is a granite structure 944 feet long, including abutments, 207 feet high at the point of deepest excavation, with a maximum thickness of 185 feet and 22.5 feet thick under the projecting cornice at the top. In addition there is a waste weir 452 feet long and 20 feet below the top of the main dam.

Passing through the dam, embedded in the masonry, there are four 48-inch cast-iron pipes with their bottoms 11 feet below high water in the reservoir. Water is admitted into each pipe through wells provided with screens and sluice gates. These pipes, after passing through the dam, enter a building which serves both as gate chamber and power house and which is located at the foot of the dam, as shown in the accompany-

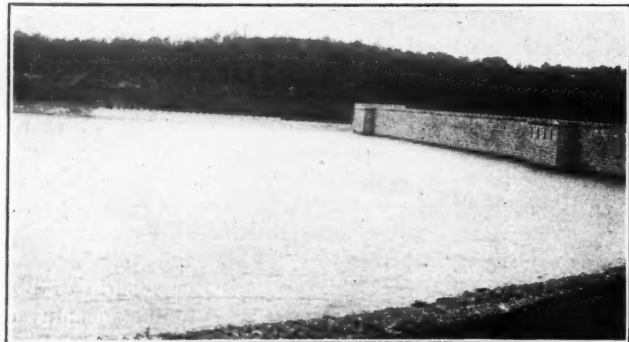


SECTION OF WACHUSETT DAM

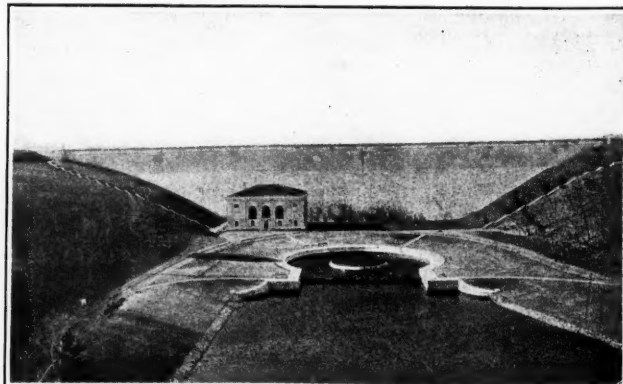
ing illustration. This building contains valves for controlling the flow of the water from these pipes either into the hydraulic machinery or into pipes which discharge into a masonry pool 150 feet in diameter located below the center of the dam and discharging into the river channel. As stated, this building also contains the hydro-electric machinery used in generating electrical energy.

After leaving the power house the water enters the aqueduct, which carries it for a distance of 12 miles. The first two miles is a rock tunnel, which is followed by seven miles of masonry aqueduct and three miles of open channel. Each of these several sections has a capacity of 300 million gallons per day. One of the many interesting features of the aqueduct is the crossing of the Assabet river, a 7-arch masonry aqueduct being constructed which is lined with sheet lead to prevent leakage and consequent damage to the masonry from freezing. The desirability of this is illustrated by the necessity which has recently arisen for lining the Cabin John bridge portion of the Washington, D. C., aqueduct with cast iron, as stated in a recent issue of Municipal Journal.

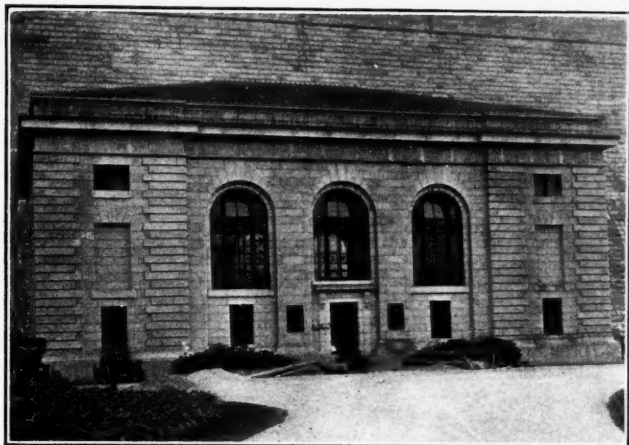
The idea of utilizing a portion of the unnecessary head created by the Wachusett reservoir is by no means recent, a legislative act having been passed in 1895 which gave the board authority to utilize the fall of water at any dam under its charge for the production of power or electricity and to transmit this in any way it saw fit and to sell the same at any point. Taking advantage of this authority the board so made its plans as to permit the installation of hydro-electric machinery whenever this could be done to commercial advantage. Some months



GENERAL VIEW WACHUSETT RESERVOIR



DAM AND POWER HOUSE SEEN FROM BELOW



GATE AND POWER HOUSE

ago it entered into a five-year contract to sell to the Connecticut River Transmission Company, of Brattleboro, Vt., all the energy which could be generated at this point by the ordinary consumption of the Metropolitan district, which is at present about 100 million gallons per day. For this energy it will receive 0.53 cts. per k.w.h. This is a very low rate, but the purchaser is under the disadvantage that the creation of energy is made secondary to the supplying of water to the Metropolitan district, and he can receive the energy only when and at the rate at which the water is used for municipal purposes, and must, moreover, pay for all the energy created at whatever time and rate. It is probable that most of the energy will be used by the mills at Clinton, to which the company had previously been supplying current brought from Vermont over a high tension line.

The power house and the pipes leading to and from the same having already been provided, it remained only to install the necessary machinery and make the connections between this and the pipes already in service. Last December the board contracted with the S. Morgan Smith Company of York, Pa., for the construction of the plant at a contract price of \$71,500. Work on this was begun in February of this year and, as stated above, the plant was completed and put into service on August 10th. It consists of four turbines, each of the spiral case, horizontal shaft type, each direct connected to a 1,000 k.v.a., 60-cycle, three-phase Westinghouse generator. Each turbine takes its supply from the outlet pipes previously described through a vertical pipe four feet in diameter at the turbine. The draft tube of each turbine has an area at its outlet of $38\frac{1}{2}$ square feet. The turbines are designed to run at 400 revolutions per minute when the gates are fully opened, and to pass through them under these conditions and a 90-foot head between 160 and 170 cubic feet per second. Each turbine is provided with a Lombard governor of the relay type fitted with a remote controlling device operating on 60-cycle alternating current energy from the station switchboard. As exciters there are two direct-current generators connected, one to a 90-horsepower and the other to a 110-horsepower turbine. The main Westinghouse generators are designed for three phase, 60-cycle energy at a nominal pressure of 13,800 volts. It is proposed to use only three of the four units at the present time, the fourth being held in reserve in case of accident, repairs, etc.

This entire plant has cost the Metropolitan district about \$125,000, and as the Connecticut River Transmission Company under its contract will pay about \$25,000 a year for the power generated, the entire cost of the plant will have been returned to the board by the end of the present five-year contract.

The chief engineer of the Metropolitan Water Works is Dexter Brackett and the superintendent of the Wachusett division is E. R. B. Allardice. B. C. Thayer is the electrician. Prof. Wm. L. Puffer acted as consulting electrical engineer for this installation.

PURIFICATION OF SEA WATER

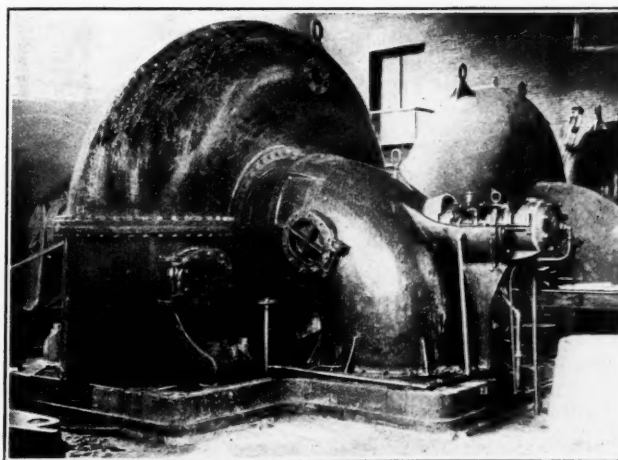
WHILE much has been said concerning objections to polluting salt water in bays and channels on account of the danger of contaminating oysters and other bivalves, we do not recall having heard of any instance in which it was seriously contemplated to purify salt water so polluted, until the presentation on Sept. 13th before the New England Water Works Association of a paper by R. Spurr Weston describing plants employed for this purpose in the city of Gloucester, Mass. These were for the purification of water drawn from Gloucester harbor by the packers of cod and other salt-cured fish for washing the fish and making the pickle; investigation having demonstrated that the polluted water of the harbor when used for this purpose was responsible for the subsequent decaying of fish cured at this place. While the purification of salt water for this purpose is not a municipal matter, the pollution which rendered this purification necessary was largely caused by municipal sewage, and thus calls attention to an additional reason for preventing the pollution of certain bodies of salt water.

Incidentally it is of interest to those who have to do with the filtration of water to learn that slow sand filters operating at the rate of 4,000,000 to 5,000,000 gallons per acre per day have proved very effective in reducing the bacterial contents of this water, and especially the *B. Coli*. The filter described by Mr. Weston was put into operation in May of this year, and the results obtained have steadily improved as the filter has aged. Tests for *B. Coli* were made at intervals of from one to three weeks, and since the second or third week of operation have all been negative, although the tests of unfiltered water have always been positive for *B. Coli*.

The filter consists of a wooden tank containing 3 feet of sand supported upon a 1-foot graded gravel layer. The capacity of this is 5,000 gallons per hour. Two other filters are under construction, each 21 feet square which, with a clear water basin and a pump house, are constructed of reinforced concrete and covered, the filters and regulating chambers with a wooden house and the clear water basin and the pump house with a concrete slab roof. These filters contain 4 feet of sand supported upon 1 foot of graded gravel, underdrained with split tiles.

AUTOMOBILE STREET CLEANERS IN BERLIN

THE city of Berlin has this year purchased for cleaning its streets a number of machines which are driven by electric power, these being the "Waschmaschinen" manufactured by Hentschel & Company of that city. These are squeegees, similar to those used in this country, except that the latter have all been horse-drawn, we believe. These are the first motor-driven squeegees to be purchased by Berlin, although a number of horse-drawn ones have been used for several years.



HYDRAULIC TURBINES AT WACHUSETT

STREAM POLLUTION IN OHIO

Attitude of State Board of Health—Importance of Trade Wastes as Polluting Agencies—Status of Bense Act

IN a paper before the Central States Water Works Association at its convention during the last week in September, John W. Hill of the State Board of Health of Ohio presented a paper, the most important feature of which was a statement of the ideas of that board concerning the desirability of preventing stream pollution under conditions existing in that State. The reasons for this he classes under three heads: The possibility that such pollution will cause epidemics of typhoid fever or of cholera in cities using such streams as a source of water supply; that it unfits the water for use by farm stock, and that it may cause a nuisance by the deposit of matters along the banks and on bars in the river.

The first of these is that most commonly emphasized in pleading for a preservation of the natural purity of streams, and is considered by Mr. Hill as a very important argument; although he states: "I do not recall any epidemic of typhoid ever having occurred by sewage polluted inland streams in this State, and of course no epidemic of cholera has ever occurred in the history of the State due to inland stream pollution." We do not understand, however, that he intends to imply that such an occurrence is impossible or even improbable, but only that so far the cities of the State have been fortunate in escaping any such disaster.

Concerning the unfitting of water for use by farm stock, this, he says, may infringe a riparian right and furnish the ground for an action at law against the offenders.

Deposits of sewage solids may "give rise to offensive odors and create nuisances which, while not inimical to health, may produce great discomfort to residents nearby, and damage property, and indirectly impair the health by the influence of the nuisance on the nervous system of the victim, although no specific disease may be caused in this manner. Mosquitoes breeding on the banks of such streams may cause malaria, and such conditions as those I have described are met with every day through the pollution of our smaller streams."

Concerning the use generally of streams for the disposal of domestic and manufacturing wastes Mr. Hill states:

In case of large rivers or rivers having a larger summer flow, or not subject to wide variation in their discharge throughout the year, where such rivers are not drawn on for domestic water supply below the point of sewage pollution the disposal of sewage into such streams is generally recognized as not dangerous to health nor liable to cause nuisance by reason of the very large dilution of the sewage flowing into the stream.

This reasoning, however, will not apply to the small streams of the State, or in fact to any stream wholly within the State, provided the water of such stream is to be used for drinking purposes.

Mr. Hill gives special prominence to another point which is not often greatly emphasized—the serious objections against the discharge into streams of manufacturing wastes and of the garbage and other wastes of cities and towns. "The objection to stream pollution as practiced here," said he, "is not based so much on the sanitary sewage from built-up communities, as it is on the use of streams for the disposal of manufacturing wastes and the use of the banks of the streams as dumps for city and village offal. The manufacturing wastes, containing acids, alkalies and dye liquors, offend the aesthetic sense and have more to do with the creation of nuisances and destruction of fish life in our streams than the sewage from the cities; and curiously enough, as I understand the statutes governing the State Board of Health, they do not give to the board the power to reach the manufacturing establishments which are now polluting the streams, excepting where the wastes are merged into city sewage and where the sewage of the city is dealt with by the board."

There are conditions found in Ohio, and, it may be said, in

many States in the central and southwestern part of the country, which render the matter of stream pollution an unusually important one. This is the existence of many small streams that flow constantly throughout the wet months and for sometime thereafter, but become dry channels during the latter part of the year. Many of these could receive a considerable flow of sewage during the winter without imparting noxious properties to the water, but become reeking elongated cesspools if so used in the drier months of the year.

It will be noticed that Mr. Hill considers the discharge of sewage into large streams permissible only where these are not used lower down as sources of water supply. A considerable number of the cities and towns of Ohio rely upon deep wells for their supply, but he believes that with the increase in population these will cease to furnish a sufficient quantity, and the surface supplies of the State must be drawn upon more and more. Such use of these streams will naturally call for more and more activity on the part of the State Board to protect them from pollution.

Reference has been made in these columns to the Bense act, which was passed in 1908 and which gave the Ohio State Board such control of the streams of the State as would permit it to compel cities and villages to cease polluting such streams. Unfortunately it now seems probable that the Supreme Court will sustain an opinion of the Circuit Court recently handed down that the law is unconstitutional. The reason for this decision is that its provisions were limited to cities and villages situated on streams wholly within the jurisdiction of the State and exempted from its provisions cities like Cincinnati, Portsmouth and Marietta which are on a river forming the boundary between Ohio and adjacent States. Should this law be finally declared unconstitutional, it is to be hoped, and is probable, that another one along similar lines and giving practically the same powers to the State Board of Health will be enacted by the next or an early session of the Legislature, since it hardly seems probable that the State of Ohio, whose inhabitants are of such a high grade of intelligence, will permit that State to long lag behind others in providing for sanitation and decency in the treatment of its streams.

PROFIT SHARING IN MUNICIPAL GAS PLANT

FOR a period of five years the Stafford municipal gas department has had in operation a system of profit sharing that appears to have proved satisfactory, according to Consul Albert Halstead.

When the total cost of manufacture and distribution of gas is less than 10d. (20 cents) per 1,000 cubic feet of gas sold, a bonus equal to one-fourth of the difference between that sum and the actual cost shall be divided among the workmen and clerks who have been employed in the department for not less than three months during the year in which the bonus has been earned. In any year where special charges, such as for main-laying operations, have been charged against revenues, the amount of same is to be deducted from the true manufacturing and distributing charges, in addition to the net cost of coal, rates and taxes, depreciation, and depreciation on cookers, etc., and consideration is also to be given to the profit and loss on gas fittings.

The employees are quite contented with the conditions of labor; during the last six years they have made no applications for increase of wages nor has there been a single complaint as to conditions of employment, while the corporation is in a position to manufacture gas at as low a net price as it can be produced anywhere in the Midlands of England. At the same time the city gas department pays annually \$17,033, or 9 cents per 1,000 cubic feet of gas sold, for the relief of taxation.

The following are the bonuses paid to the men during the past five years: 1906-7, 7½ per cent on total wages paid; 1907-8, 9 per cent on total wages paid; 1908-9, 9¼ per cent on total wages paid; 1909-10, 9½ per cent on total wages paid; 1910-11, 10½ per cent on total wages paid.

ATLANTIC CITY DRAINAGE

Concrete Mixing and Handling—Special Forms to Permit Gradual Reduction in Size—Handling the Sheeting—Lateral Drains

(Concluded from page 320)

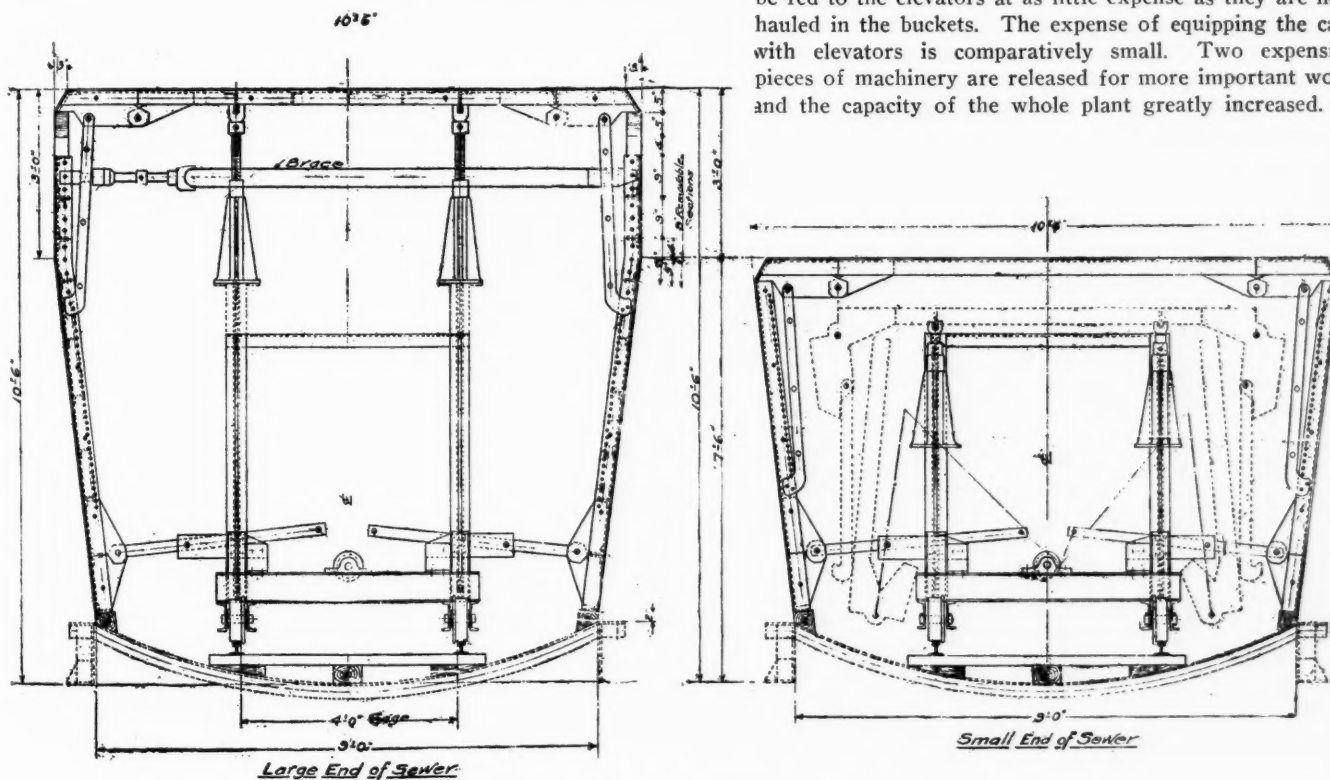
Gravel is used as the aggregate in all concrete. This material comes from the Delaware river in the vicinity of Philadelphia, and is brought to Atlantic City by rail. Sand comes from the same place. Both materials are obtained by pumping and are clean and of excellent quality. At first the contractor thought these materials could be delivered on the track that runs alongside the work just as needed. He found, however, that the uncertainties of delivery, on account of irregular receipts and switching service were such as to make it desirable to store the material although it had to be handled a second time and delivered by teams costing \$5 a day. Accordingly a pile of 500 yards or more is carried at all times. The Atlas brand of cement is being used and this too, is delivered on cars and stored in a warehouse. All concrete is machine mixed in the proportions of 1:2½:5. It makes a fine appearing concrete with voids apparently all filled, the clean gravel and sand giving it a bright color. Chain-belt mixers are used. Of these there are four on the job; two ¾-yard mixers used on the main drain and two ½-yard machines used on the laterals. The contractor selected these mixers because, he said, he was tired of breaking cog wheels and replacing them when the teeth were worn thin. He finds, however, that chains wear too, and that the only safe procedure is to keep a supply of the wearing parts on hand. The concrete mixers for the main drain are mounted on cars, one outfit being used at each end of the drain. An American 10-ton crane, of the same type as those used for excavating, attends each mixer car, lifting the stone and sand to the hopper of the mixer in a ¾-yard bottom dump bucket. The gravel and sand are delivered in a convenient location alongside the work. Men load the bucket and the crane delivers it. The concrete plant consists of a mixer, and a housing, occupying about half of the space on the car in which cement is carried, protected from the rain. An upright boiler with engine, drives



SIDE FORMS BRACED DURING CONCRETING

the mixer. Men add the cement by hand. The delivery chute from the mixer throws the concrete on to a chute leading to the bottom, side or top walls of the conduit, wherever the work is going on. For the bottom of the drain concrete sufficiently dry to admit of shaping is used; for the side walls wetter concrete is desirable to insure filling of voids. Templates for guides in shaping the concrete in the bottom of the conduit are made of T-iron. These are removed when the concrete is set and the space filled with concrete.

Although this portable concrete car and locomotive crane makes an excellent outfit the contractor is making a change which will facilitate the work. A concrete mixer will mix from 100 to 150 cubic yards of concrete a day. A crane will of course, handle much more material than this, if the material is accessible. To each running foot of sewer there are about seven yards of excavation to move and three yards of concrete to put in. As it has been operating the outfit is unbalanced. All four cranes are to be put to work on the excavation. The concrete mixer cars are to be equipped with belt elevators with the loading boot close to the ground. As gravel and sand have to be delivered in wagons, these materials can be fed to the elevators at as little expense as they are now hauled in the buckets. The expense of equipping the cars with elevators is comparatively small. Two expensive pieces of machinery are released for more important work and the capacity of the whole plant greatly increased.

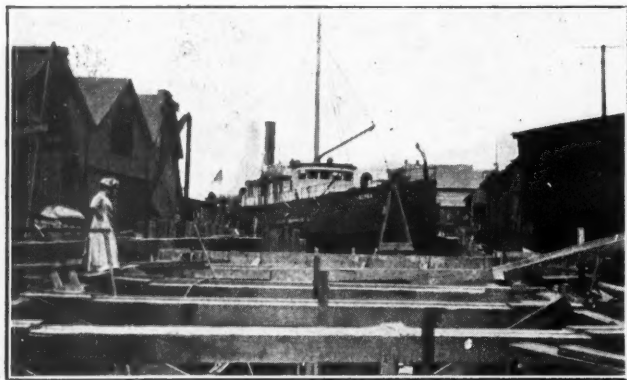


BLAW CENTERING, WITH TRAVELER FOR SUPPORTING SAME

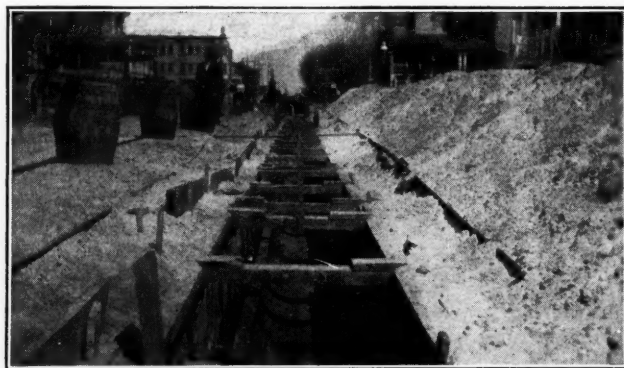
Blaw collapsible steel forms of special design are used for shaping the wall and roof of the drain. These were designed by the president and vice-president of the company, Wm. G. Root and S. M. Neff, in collaboration with the engineers of the Blaw company, to meet an unusual contingency. The conduit varies in height gradually throughout. Practically the changes are made by quarter inch variations in the height of the side of the forms. The bottom of the sewer is raised up

The lower reaches and beams are taken out after the concrete bottom is laid, the others, as convenient, in advance of the concreting. Finally the shoring is pulled up by the locomotive crane, and the loss, though considerable, is comparatively small for such work. Finally the drain is covered with sand, pavements and curbing replaced and the section is finished.

The most interesting lateral drain now under construction is the rectangular concrete drain on Maryland avenue, which is



STEAMBOAT IN INLET AT END OF MAIN DRAIN



THIRTY-INCH CONCRETE LATERAL

at the rate of 3 feet to the mile, the top remaining level. In order that the same forms might be used (80 feet are in use at each end of the job), three detachable 9-inch segments have been made in the vertical portion of the side frames. One of the 9-inch segments is made up of quarter inch thick pieces of wood, which may be taken out one at a time. When all of these pieces have been removed as the work progresses, a 9-inch segment is taken out and the whole 9-inch wooden segment inserted again. A drawing of these forms is shown in the illustration. The peculiar character of these forms requires a corresponding modification in the carriages which carry them forward on the work after they have been taken down. The carriage is accordingly made so that by means of jacks its height can be varied. The forms, though made of 5-foot sections, are moved in sections of 20 feet, two carriages being required to handle them.

The reaches, braces and shoring are removed and used again.

4 feet wide and approximately 2 feet 9 inches in height. The invert is circular in section. For this work a special Blaw form was designed by the contractors and the Blaw company. The invert is laid to templates and shaped by hand. The collapsible form therefore is used for the sides and arch. This form, when in use, rests on wheels, and when collapsed is moved forward on them. Standard Blaw forms are used on all the circular drains. Erie pumping outfits are used on every job to remove the water from the underdrain. Chain belt mixers of $\frac{1}{2}$ cubic yard capacity mix the concrete. These are moved along the ground side of the work and the material delivered by chutes. The engineering department of the Atlantic City drainage work consists of E. G. Rightmire, city engineer; T. Chalkley Hatton, and John H. Decker, consulting engineers and James L. Ferrebee, resident engineer.

The contractors are the William G. Root Construction Company, of New York.



SIDE FORMS IN PLACE. TRAVELER IN BACKGROUND PLACING TOP FORMS

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SEPTEMBER 27, 1911

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Arguments Against Stream Pollution

Two abstracts, in this issue, of papers read, the one before a New England society and the other before a meeting in Ohio, present a new argument against the pollution of harbors and emphasize one point against the pollution of streams which is not ordinarily given much prominence. Mr. Hill of the Ohio State Board of Health calls attention to the fact that, in his State at least, manufacturing wastes have more to do with the creation of nuisances and the destruction of fish life in streams than does the sewage from cities. This point is especially brought to his attention because, in the laws of Ohio defining the powers of the State Board of Health, little or no authority is given it to regulate pollution by manufacturing wastes except in so far as such wastes form a part of municipal sewage. That is, isolated plants, although the acid or alkaline waste water from them may be even more objectionable than that reaching the rivers through the sewers because it is not neutralized by other polluting matter, cannot be prevented by the State Board or any other authority from discharging it into streams.

While this idea of the pollution of streams by factory wastes

is by no means a discovery of Mr. Hill, the experiment station of the Massachusetts State Board of Health having for years been working on methods for purifying such wastes, this paper calls attention to the fact that the intelligent legislators of Ohio, and probably those of other States as well, have failed to take sufficiently into consideration the important part which these wastes play in the pollution of streams. In the far-and-ill-famed Passaic river we believe that the larger part of the offensive pollution is caused by wastes from the factories which line its banks for miles, and that, unless these are restrained from discharging into the river, the withholding from it of the sewage of all the cities in the Passaic Valley will fall far short of the desirable purification of the river.

The other paper referred to instanced another reason, local, it is true, for preventing the pollution of tidal waters. Baltimore is spending millions to protect its shellfish industries; New York City will probably be required before long to withhold from the waters of the harbor much of the sewage matter from the Boroughs on Long Island because of the danger of silting up the harbor and of creating local nuisances, if not indeed a general nuisance over a large part of the harbor; and the damage occasioned to the cod curing industry by the pollution of Gloucester harbor suggests that there may be a number of other reasons, each more or less local, for diminishing or preventing the pollution of various tidal waters which it is generally assumed can receive sewage without any legitimate objections thereto being raised.

Fire Department Accounting

The commissioner devoted a considerable part of his report to considering comparisons between costs of fire departments as ordinarily given, apparently in reply to charges that the cost of the Boston department is extravagantly high. He claims, and offers excellent reasons in substantiation, that the per capita cost of Boston's department cannot in justice be compared with the per capita costs as given by other cities, since the method of obtaining the per capita costs are different in different cities. He considered this matter under the four heads of variations in accounting, distribution of the local population, fire risk to be guarded against, and topography.

In Boston it is customary to charge against the fire department appropriations all expenses arising from pensions, fire alarm service and many of the permanent improvements; while in New York the receipts from foreign fire insurance taxes, special permits, licenses, etc., are credited to the pension fund; and the expenses of the fire alarm are charged to the department of electricity in Chicago, Philadelphia, San Francisco and Washington, but to the fire department in Boston. In New York not only permanent improvements but even hose and horses, he was informed, are paid for from loans and not charged to the department appropriations. Thus a comparison of the appropriations in the various cities is not strictly just to Boston and certain other cities.

His argument based upon the distribution of local population is perhaps a reasonable one, although it seems probable that the same methods are employed in all large cities, and consequently comparison between these are fairly reliable. His idea is that protection is afforded to a large part of the population of the surrounding cities and towns, as well as to the sleeping population of Boston, because these suburban residents have their business houses and property in the city. He illustrated his point by combining the population and also the costs of fire protection of all the cities and towns in the Metropolitan district, and from these found that the per capita cost of protection is \$1.88, as against \$2.41 in the city proper.

Differences in the fire risk in various cities should undoubtedly have an effect in determining the extent of the apparatus maintained. The commissioner stated that the downtown district of Boston is covered with old second-class buildings, and this, combined with narrow, crooked streets, and inaccessible interiors, adds greatly to the fire risk, which he considers to be greatest of any city in the country.

The topography of Boston is a very important factor in determining the amount of the apparatus. Boston is divided into five sections and four of these divisions are caused by extensive waterways. The almost continuous congestion at the bridges and ferries connecting these render it unsafe to rely to any great extent upon any of these districts receiving prompt assistance from the companies in the others. Consequently each unit must be considered largely by itself and a greater amount of apparatus and a larger force concentrated in each one than would be necessary if they could be considered as strictly co-operative.

In connection with this discussion the commissioner presented a table showing the ratios between fire department appropriations and total assessed valuations.

RATIOS BETWEEN FIRE DEPARTMENT APPROPRIATIONS AND TOTAL ASSESSED VALUATIONS.

City.	Total Appropriation for Fire Department.	Assessed Valuation.	Ratio, 1-100 of Per Cent.
New York.....	\$8,153,542.40	\$7,416,837,499	11.0
Chicago.....	3,001,158.99	2,524,699,600	11.5
St. Louis.....	1,104,823.49	855,872,300	12.9
Boston.....	1,582,390.36	1,393,765,432	11.3
Cleveland.....	902,420.00	875,000,000	10.3
Detroit.....	1,023,249.86	337,335,980	29.7
Buffalo.....	904,877.00	312,276,240	29.0
San Francisco.....	1,262,432.00	515,420,089	24.5
Milwaukee.....	720,000.00	247,573,150	29.6
New Orleans.....	424,832.00	230,840,937	18.4
Baltimore.....	1,582,289.40	689,135,168	22.7
Cincinnati.....	829,096.00	250,283,550	33.1
Washington.....	683,230.00	323,956,753	21.1

In addition to the purchase of apparatus, fire protection in Boston is to be greatly strengthened by the construction of a high-pressure system, a bill providing for the ultimate expenditure of about one million dollars in the business section of the city having been introduced in the last Legislature by Mayor Fitzgerald and passed by it and accepted by the City Council. It is the opinion of the fire commissioner that the installation of high-pressure hydrants will release a considerable number of men for service in the residential districts and thus practically add to the number of the fire fighting force.

LONDON'S MUNICIPAL TRAMWAYS

In a report submitted to the London County council at a recent meeting it is stated that the capital expenditure in connection with the municipal tramways of London during the fiscal year ended March 31 last amounted to \$56,543,070, of which \$4,425,268 was incurred during 1910-11. The debt outstanding was \$46,620,865, the difference, amounting to \$9,922,205, having been paid off. Of this amount \$8,322,522 has been repaid out of revenue.

Deducting from the debt outstanding the value of surplus land held as an asset against debt (\$557,009), the net debt on March 31 last was \$46,063,856. The surplus on working for the year (\$4,355,750) is \$82,545 less than the original estimate, but it is \$44,518 more than the revised estimate of the year based on nine months' working. The available surplus, after meeting charges for interest, repayment of debt, and other items, was \$1,132,565.

Taking the result of the electric system by itself, the surplus on working amounted to \$4,450,015, and is equal to 42.53 per cent of the gross receipts, as against 44.11 per cent for 1909-10 and 42.99 per cent for 1908-9. The traffic receipts obtained from the working of the electric lines averaged 22 cents per car mile, and including advertisements and other sundry receipts the total receipts amounted to 22.56 cents per car mile, as against 23.62 cents for 1908-9 and 22.96 cents for 1909-10. The continued decrease in the receipts per car mile is a matter which, the finance committee remarks, requires to be kept under observation.

The average fare per passenger for 1910-11 was 2.08 cents, as compared with 2.12 cents for the previous year.

The expenses worked out to 12.96 cents per car mile, including 1.66 cents for power. Adding 1.35 cents for debt

charges in respect to power, the total expenses for power amount to 3.02 cents per car mile, as against 3.42 cents in 1908-9 and 3.16 cents in 1909-10. The surplus on working is 9.60 cents per car mile, as against 10.12 cents, 10.14 cents, 10.32 cents, and 10.34 cents, respectively, in the four preceding years. Thus for the first time (1910-11) the surplus on working has fallen below 10 cents per car mile.

CREDIT SYSTEM OF METER CHARGES

BY BURT A. HEINLY

Santa Ana, California, a town with a population of 10,000 people, has a system of charging the minimum water rate which should prove of interest to water works officials who hesitate to adopt the meter system for fear of public protest. So far as known, it is a unique method of water taxation.

Water is pumped from wells and is sold at the rate of \$1.00 per 1,000 cubic feet or 13 cents per one thousand gallons. The minimum monthly rate is \$1.00 for a $\frac{3}{4}$ inch meter. While the consumer pays never less than the minimum monthly rate of \$1.00, he is charged only with the amount of water he actually consumes. His receipt gives the actual reading of the meter and if he has used less than 1,000 cubic feet he is credited with the difference which he is at liberty to use at any time. To illustrate: In March he used 550 cubic feet so that 450 cubic feet was placed to his account; in April he used only 600 cubic feet and 400 cubic feet was placed to his account; in May he planted a garden which required heavy irrigation and during this month he used 1,850 cubic feet. His bill for May remains \$1.00, for he has simply used the quantity credited to him, whereas under the usual system of water tax it would have amounted to \$1.85.

The method has been in vogue in Santa Ana for ten years and is claimed by the Santa Ana Board of Water Commissioners to be eminently satisfactory because it is equitable for buyer and seller.

The plan was placed in operation when metering was first adopted. Santa Ana is situated in the Southern California Coastal plain with a climate semi-arid in character. The annual rainfall is approximately 15.5 inches, 96 per cent of the seasonal precipitation occurring between October 1 and April 30. Under these conditions, the announcement of the Water Board that it would install meters met with the most determined opposition of property owners as well as the press. The credit plan solved the problem.

Mr. G. A. Read, the superintendent, makes the assertion that the system entails very little extra work on the books and from the very fairness of the plan has brought the community into hearty support of the Water Commission through several administrations.

INSIDE FIRE ESCAPE

Building Commissioner Henry Ericsson, Chicago, Ill., has the tentative design of an improved kind of fire escape in his office, which he believes will be both practical and sightly. It is a plan of his own design, and he intends to advocate its use. He explained that it has some of the features of certain tower fire escapes used in New York, but differs from them in that it takes up less room.

The plan of the new structure is to have a spiral stairway built inside the building line of the building which it serves. The tower of the stairway is entirely independent of the building itself, there being separate walls, leaving an air space between it and the main structure. The connection between the tower and the building for the purpose of entering the fire escape in case of fire will be an iron platform, as used in ordinary fire escapes. At the outer end it will be open to the air thus affording an air current that assures the fire escape freedom from smoke and fumes. Swinging doors similar to those used in restaurants are provided between the building and the platform and again between the platform and the fire escape. Those on the fire escape side are so narrow that they can be hooked back without obstructing the passageway.

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets,
Water Works, Lighting and Sanitary Matters—Fire and Police Items—Government and Finance

ROADS AND PAVEMENTS

Highway Commissioners Join in Tour of Inspection

Albany, N. Y.—The Highway Commissioners of seven Eastern States, who have at their command appropriations exceeding \$100,000,000 for new roads, started from Albany last week, accompanied by representatives of the United States Office of Public Roads, on a tour of road inspection through New York, Massachusetts and Connecticut, under the auspices of the Touring Club of America. Among the important subjects to be discussed will be the adoption of plans for the construction of uniform highways and trunk line routes connecting the main traveled thoroughfares of New York, Massachusetts, Connecticut, Maine, New Hampshire, Vermont and Rhode Island. While all of these Commonwealths have hundreds of miles of fine roads which are being maintained under modern methods, one of the long recognized needs in highway improvement is said to be the necessity for more continuous trunk lines from State to State, which in their construction and measurements will be of uniform standard. In addition the highway officials will discuss the dust problem, with the best preventives, and the success of the appliances now being used in various States. The conference affords the New England officials the opportunity to meet for the first time since assuming office State Superintendent of Highways William H. Catlin, State Engineer John A. Bensel and Superintendent of Public Works Charles E. Treman, comprising the new Highway Commission of the State of New York.

Highway Department to Provide Sign Posts

Erie, Pa.—As soon as Highway Commissioner E. M. Bigelow secures an estimate of the number of sign posts needed to properly equip the highways of Pennsylvania with markers, contracts for metal posts will be let. For weeks the commissioner has been working out a plan to provide the State with uniform sign posts. He found these indispensable adjuncts to travel almost totally lacking in every part of the State he visited on his tour of 2300 miles of road and reports have reached him that conditions are as bad in other parts. "My idea is to provide a uniform marker for the State and to gradually supply every locality with them. Think of three or four roads meeting and not a board to tell where they go," said he. "I have had some designs made. They call for metal posts which will give locality, directions and distance. They will be State property and protected by law. I don't think much protection will be required as they are what people want. There will not be much cost of maintenance as they will be made of stuff that will stand wear." The commissioner has ordered issued blanks for application for State aid for road construction under the Sproul main highway commission bill, which gives one-half instead of three-fourths of the cost. These blanks will go to every township and it is expected that many will apply as practically nothing in that line has been done lately. So far three applications have been made under the new law.

Much Good Roads Work in Progress

Whittier, Cal.—The contract for work upon the short stretch of incomplete road on the good roads boulevard leading from Los Angeles, by way of Whittier, to the Orange County line, has been let, and with its completion Whittier will have one of the finest road systems in Southern California. The recently completed "good road" between here and Los Angeles is holding up well and since its completion has become a great pleasure drive for automobilists. The bridge across the San Gabriel at Savanna, upon the highway between Whittier and Pasadena, is almost completed. The strip of road east of El Monte on the Pomona boulevard is being put in first-class condition. The road on the east beyond the Leffingwell ranch is closed to the County line. Cement culverts are being

put in. It is estimated that the work will be completed in sixty days, probably before the rains set in. It has been proposed by Orange County residents to continue the road from its present terminus through Santa Ana to Newport Beach, thereby effecting a continuous good roads boulevard from Los Angeles to the sea by way of Whittier.

South Bend to Be Paved.

South Bend, Ind.—The City Council last week let the contract for the first paving in South Bend on Water Street for a distance of seven blocks. The paving will be concrete and the contract includes sidewalks of the same material.

Circumferential Boulevard for Washington

Washington, D. C.—The Commissioners have formed plans for the construction of a boulevard which will circle the city and will connect the old-time Civil War fortifications about the national capital. The construction will require the co-operation of the national government and the



BOULEVARD PLANNED TO CIRCLE WASHINGTON, CONNECTING
OLD FORTS

States of Maryland and Virginia. An appropriation will be sought from Congress but not so large in amount as might be supposed because many sections of road already built will be incorporated in the scheme. To connect all of the forts it will be necessary that roads be built in unison with the scheme in Maryland and Virginia.

New York Governor Reviews State Road Work

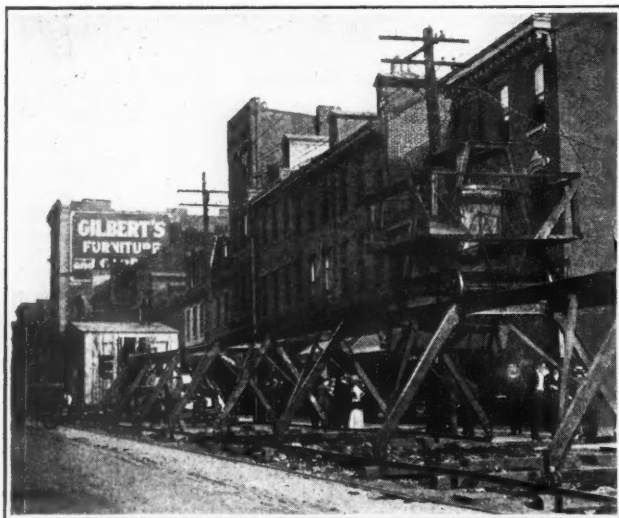
Syracuse, N. Y.—Gov. Dix in his speech at the State Fair Grounds spoke in part as follows:

To-day we find that when all the work under contract shall have been completed and paid for there will have been expended of the \$50,000,000 of bond issue \$25,500,000, with the result that only 2479 miles of the county roads will have been improved out of \$380 contemplated, and only about 543 miles of the State roads out of the 3494 miles contemplated. The average cost to the State of these improved roads has been about \$9,000 per mile, not including the money which has been paid by the counties. The Legislature has appropriated in special acts \$3,955,000 for certain State roads, which, added to the \$25,500,000 already contracted for, makes a total of \$39,455,000 expended and leaves approximately but \$10,500,000 for distribution on a general allotment. It is evident that the distribution of expenditure for improving roads has not been made with the idea of completing roads on the map as approved by the Legislature in 1907 with the money provided. You will observe that 50 per cent of the money has been obligated and only 25 per cent of the mileage will have been completed, and, if I mistake not, another bond authorization will be demanded by the people to adequately meet the demands of agriculture and of trade and traffic.

SEWERAGE AND SANITATION

Building Six-Foot Storm Sewer Near Center of City

Pittsburg, Pa.—When the Fifth avenue extension of the Try street basin, which is now under course of construction, is completed, all property along Fifth avenue and its cross streets will have a drainage system that will take care of all sewage and surface water in that section of the city for many years to come. The new sewer will be tapped to the large Try street basin at Elm street. Excavations are now being made on Fifth avenue near Logan street, preparatory to the building of the new sewer, which will be of solid concrete with a brick invert, of an approximate diameter



Courtesy Pittsburg Dispatch.

EXCAVATION FOR SIX-FOOT SEWER

of six feet and laid to an average depth of fifteen feet. It will be tapped at the east end to the three-foot brick sewer which comes down Dinwiddie street and will be joined at the west end to the Try street basin at Elm street. Ten teams are kept busy hauling the dirt to the northside, where it is being used to raise some of the streets in that section of the city. The new sewer is being laid on the south side of Fifth avenue, while the old sewer lies on the north side. This will be left just as it is. Director Armstrong inspects the work daily. Everybody passing stops to watch the sewer excavator empty the huge buckets of earth into wagons.

Building Sewer System for Less Than Estimate

Dixon, Cal.—Some of the trenches for Dixon's new \$35,000 sewer system, now being installed, will be as deep as twelve and fourteen feet. This is necessary to secure sufficient fall to the septic tanks at the Driving Park, and on account of there being a low section to be crossed. The sewer is now being installed in the residence section. The Trustees are planning various improvements for the Driving Park, an acreage secured for the septic tanks. This will eventually be converted into a public park. The park cost the city approximately \$9,000. At the last meeting of the Trustees it was decided to place a concrete roof instead of one of corrugated iron over the sewer sump. This with additional laterals ordered will cost, it is estimated, over \$1,000. The sewer bond issue was for a total of \$40,000, but it is estimated the system will cost but \$35,000.

Merchants Comply With Screening Ordinance

St. Augusta, Fla.—According to present indications no arrests will have to be made by the police department to secure the full enforcement of the screen or anti-fly ordinance recently enacted by City Council. Mayor Webb gave Chief of Police Benet orders last week to make arrests if the ordinance was not complied with. Merchants, fruit dealers and all others complied with the measure fully. Those who have electric fans over their wares are not required to screen.

Sewer Blows Up

Akron, O.—Another section of the big Glendale sanitary sewer on Willow street between Exchange and Cedar street blew up last week and, as a result, hundreds of dollars worth of damage has been created on Willow street. A dozen homes have been flooded with sewage and the residents are making a vigorous protest. The basements of homes are filled with filthy stuff. The situation is so serious that a special meeting of the Board of Control was held and Service Director was instructed to go ahead and make repairs without first bringing this to the attention of Council. "We cannot wait for Council," said Gauthier. "Here is a job of work that must be attended to at once. It's awful, the conditions that exist on Willow street." It will be no surprise if Council is flooded with damage claims. A dozen attorneys have been employed by property owners to bring action against the city.

Sewer Work Stopped Over Discrepancy in Contract

Scranton, Pa.—Work on the Old Forge borough sewer has been suspended by Contractors Langan and Kehoe because the borough refused to pay at the lineal foot rate specified in the contract. The contract calls for \$1.844 per lineal foot, although the firm's bid was \$1.084 a lineal foot. This discrepancy was discovered when the contract got into court a few weeks ago in an injunction proceeding started by citizens to hold up the job. The difference between \$1.844 as mentioned in the contract, and \$1.084 specified in the bid, will amount to \$5,000 on the total cost of the improvement. When the firm called on the borough authorities for part payment on the contract the rate of \$1.084 was offered, but the firm would not accept it, declaring that the contract called for \$1.844. Langan & Kehoe say they will sue if the contract is not lived up to in its entirety.

To Take Up Sewage Disposal Problem

Dallas, Tex.—For the disposal of the sewage of the city \$550,000 in bonds have already been voted, the recently called session of the State Legislature has specifically approved of the issue, and plans are being made for the issuing of the bonds and for the perfecting of the disposal system. According to Sir Robert Bucknell, the English publicist who spent some time with the committee, in England even the hamlets are required to have sewage disposal systems, and such thing as a typhoid fever epidemic of water infection is practically unheard of in the United Kingdom.

WATER SUPPLY

City Wants Water Company to Show Books

Richmond, Ind.—The city, if it succeeds in forcing the Water Works Company to open its books for the purpose of ascertaining the valuation and earnings of the company, would not thereby obligate itself to enter into a contract with that company, according to City Attorney Gardner. Mr. Gardner says he has looked into the matter thoroughly before drawing up an ordinance for the opening of the books as Council ordered at its last meeting. He bases his opinion on the State statute which provides that, "Council shall have the power to investigate the affairs of any corporation, firm or person in which the city may be interested or with which it may have entered into a contract or be about to do so." Mr. Gardner said that so far as he could find the statute has never been interpreted by the courts, but he believes the language so plain that there is no question of its interpretation. It was his opinion, too, that the city will not have to bind itself to keep secret the information it may uncover. It can look over the books, see what the company has been earning and then, if it wants to, enter into an agreement with another company.

Installing Duplicate Pumping Plant

Fort Wayne, Ind.—The new pump for duplicating the unit now installed in No. 3 water works has arrived and will be placed in position immediately. The motor has not yet been completed by the Fort Wayne Electric Works, but will be ready within a couple of days. The Council will be asked to ratify the contract for the new building at its next meeting.

To Ask Increase for Water Works

Cincinnati, O.—An increase of \$95,579.90 for the operation of the city waterworks in 1912 is asked for in the budget submitted to Service Director Sundmaker by Superintendent Laidlaw of the waterworks department. The total of the budget is \$1,255,443.75. The allowance for the current year was \$1,159,863.85. The increases required, Mr. Laidlaw reports, is due to the increased service in the annexed territory and to increases in wages ordered by Council in the new codification ordinance. He estimates the income of the department for next year to be \$1,225,000. The estimated surplus at the end of the current year is placed at \$100,000, of which \$93,000 was on hand January 1, 1911. The administration department requires \$96,621, an increase of \$3,339; the pumping department wants \$280,944.75, an increase of \$17,244.75; the distribution department asks \$229,000, an increase of \$37,200, while interest and sinking fund is placed at \$633,828, an increase of \$37,706.15. The funds in the waterworks budget are provided for out of the income of the department, and no receipts are had from the tax levy, so that it is not necessary to submit the budget to the County Tax Commission as was done with the other city departments' budgets.

Claim Water Drawn Through Lead Pipes Is Poisonous

Lowell, Mass.—The following letter from the State Board of Health was read at the last meeting of the Water Board:

State House, Boston, Sept. 7, 1911.

To the Lowell Water Board, Lowell, Mass.:

Gentlemen: The State Board of Health received from you on July 20, 1911, the following request for advice as to the use of water from the Cook wells for the supply of the city of Lowell. "The Water Board desires an opinion from the State Board of Health as to the advisability of continuing to use the Cook wells water plant. We have been pumping water from this plant since March, nearly six months, and really need this supply until the fall rains, as the boulevard plant is hardly sufficient to supply the needs of the city, and this board wishes to know if it will be a menace to the health of the people using this water to continue its use for a few weeks longer." Before the investigations had been begun, however, the use of the Cook wells was discontinued. An examination of the water at the source when not in use would not furnish adequate information as to the probable effect of the water when delivered constantly through the distribution pipes; consequently the board instituted inquiries as to the condition of the people in the section of the city that was supplied with Cook well water during the past six months and there found invalids whose condition may, in the opinion of the physicians, have been aggravated by lead poisoning. The results of these inquiries confirm the opinion of the board formerly expressed to you—that Cook well water drawn through lead pipes is a poison and its use is a serious menace to the health of the people. Continuing to supply this water to the citizens under present conditions would, in the opinion of the board, be wilful injury to the health of the people. By order of the board,

MARK W. RICHARDSON, Secretary.

City Will Contest Water Suit

Berkeley, Cal.—That the city of Berkeley will contest to the final issue the suit of the People's Water Company to enjoin it from establishing lower water rates in this city was the final decision of the City Council following a conference on the suit now pending in the United States Circuit Court in San Francisco. The plan followed a half hour's discussion on the subject at the regular meeting of the Council, when City Attorney Redmond C. Staats filed formal report with the Council on the outcome of the hearing before Judge Van Fleet in San Francisco. To secure expert opinion in order to carry out the scheme for lower rates it is probable that the city will engage a consulting engineer to carry out comparisons of the physical plant of the corporations, and several realty appraisers to give expert opinion on the value of the lands of the company. The main issue between the water company and the people of the city arose out of disagreement of the value of the plant of the company, the rates being based on a per cent return on the investment.

City Waterworks System Operated at Great Saving

Bloomington, Ill.—The city recently purchased new water works pumping machinery. The new pump was guaranteed to lift 120,000,000 feet pounds of water with 1000 lbs. of steam, and did better than that. The pressure on the mains was also tested after the new machinery was installed and they were able to throw a stream of water much above a large six-story building there. Twenty-inch mains are being put in. The engineer estimated \$30 per day, or about \$10,000 per year, as the saving on the new system. The statement is made that this sum will pay the interest on the bonds which were issued to construct the improvements.

To Buy Water Meters from Current Revenues

Washington, D. C.—The treasury of the District water department was anything but depleted at the beginning of the present fiscal year, July 1, for, according to the annual report of Supt. W. A. McFarland, transmitted to the Commissioners, there was a balance on hand at that time of \$87,198.42. So satisfactory is the financial condition of the department that the installation of 5000 meters, to be paid for out of the current revenues, is anticipated during the year, the report states. In no instance does the report refer to the proposed increase in water rates so that the entire service may be metered, but the fact that the department has under consideration the installation of 5000 meters out of its own funds is regarded as significant. The department has provided for the installation of meters out of current revenues before, but the number has seldom reached 3000 annually, and did not exceed that mark last year.

Surveys to End Water Waste

St. Louis, Mo.—Whether 110 gallons of water actually are being used in St. Louis each day for every man, woman and child will be determined in a series of surveys which E. E. Wall, Water Commissioner, and Maxime Reber, president of the Board of Public Improvements, intend to have made. Reports of the commissioner indicate 110 gallons per capita are leaving the pumping stations. Mr. Reber said he is confident a good portion of this water is lost through leaks and waste, and for this reason the data will be gathered. One survey, which will require a year, will be an electrolytic survey to ascertain whether electricity escaping from the United Railways Company's tracks is eating the water pipes. The escaping current acts in a peculiar way, transferring the molecules of iron from one part of the pipe to another, and in so doing necessarily makes holes. The other survey, which will take two years, is the Pitometer survey. The tube by which the tests are made is fitted to the main and the pressure registers automatically.

STREET LIGHTING AND POWER

Los Angeles Engineer Inspecting Power Plants

Los Angeles, Cal.—Responsible for the expenditure of \$3,500,000 for the development, transmission and delivery of electrical power, the property of the people of Los Angeles, E. F. Scattergood, chief engineer of the Bureau of Los Angeles Aqueduct Power, has gone on a "hunting" expedition for elusive cost items and depreciation figures. He is also hunting for down-to-the-minute ideas on power plant construction and maintenance. These are the only kind of game in which he at present takes an interest. Scattergood is accompanied in his hunt by T. A. Panter, his chief assistant. They intend to inspect every important plant in the country, the operation of which may serve as a guide to them in the work for Los Angeles. The information obtained during this trip will make it possible to give Los Angeles the most efficient plant for the money expended in the world. Chief Engineer Scattergood believes he will be able to give the people of Los Angeles electricity at a less actual cost than it is supplied to any city in the world, and expects to confirm this belief by the knowledge he gains on his present trip. He has given an estimate of cost of \$80 per kilowatt, or \$60 per horsepower, which is much less than the average cost of hydraulic power development and installation elsewhere on the Pacific Coast under generally similar physical conditions and surroundings, and he hopes to be able to keep under rather than go above the estimate.

Improvements and Economies in Washington Street Lighting

Washington, D. C.—Nearly \$10,000 will be saved by the District on the bills for street lighting rendered by the Potomac Electric Light & Power Company, this having been accomplished by the settlement of the electric lighting dispute opened by Commissioner Judson about nine months ago. The report of Walter C. Allen, District electrical engineer, which went to the Commissioners last week, gives the exact amount to be withheld from the company as \$9,769.40. The dispute over the bills started while the Commissioners were making up their estimates for the District's appropriation now in effect. Commissioner Judson held that the Potomac Electric Light & Power Company for eleven years

had been furnishing in certain instances lamps of less than 1000 candlepower, the grade required by law, and the company held that the lamp it had been furnishing was much better than the old 1000-candlepower lamp. Many important changes were made in the street lighting system during the year, the principal one being the substantial reduction in prices secured by agreement with the contracting companies after a careful analysis of the costs of the various kinds of lighting. These reduced rates were presented to Congress and by it included in the appropriation act for the fiscal year 1912. In the case of the electric arc and incandescent lamps, the rates were made effective from the date of the passage of the act—namely, March 2, 1911. In the case of the gas lamps east of Rock Creek, supplied with gas by the Washington Gas Light Company, a reduction of fifty-eight cents per lamp per annum was made, to begin January 1, 1911, and remain in force until the expiration of the present contract for such lamps—namely, June 30, 1912, after which date the lower rate adopted by Congress shall apply. In the case of the gas lamps west of Rock Creek, supplied with gas by the Georgetown Gas Light Company, a similar reduction was secured, but not made effective until August 1, 1911.

Central Square and Park Lighted

Westfield, Mass.—The new electric lights around the park in Park square and most of those in Elm street have been placed in position and Superintendent Pettibone says that they will be in use in a very short time. This is the final touch of the improvements in the square and the street which have now been under way for two years, costing \$100,000. The lights around the park are arranged in clusters of three, the poles being fifty feet apart. In Elm street the poles are 125 feet apart and alternate on opposite sides of the street so that they are but half of that distance from each other. When the underground wiring is completed the current will be turned on and plenty of light is promised. The wooden poles will be removed as soon as the work is completed and this is expected to add much to the appearance of the street.

Brunner Supplied With Electricity and Water

Brunner, Tex.—Brunner, one of Houston's most prosperous suburbs, and destined before many years to become an important part of Greater Houston, has at last secured a waterworks and light plant. The Brunner Water & Light Company, of which S. H. Jones is manager and A. P. Rutherford electrical engineer, commenced service of illumination last week. The start was made under most favorable circumstances. There was not a hitch in the machinery, and the lights burned steadily and brilliantly. It was the first time any Brunner houses had been illuminated by electricity, and fifty houses were lit up on the opening night. Other houses and residences will at once be wired and commence the use of electricity. It is estimated that there are 600 or 700 houses in Brunner, which seventeen years ago had but thirty. The electric light plant has a capacity of 125 horse-power. At present it is furnishing electricity for illuminating purposes only, but expects in the near future to commence supplying electric current for manufacturing and other purposes.

Two artesian wells have been put down. One is 789 feet and the other 250 feet deep. They furnish an abundant supply of pure water of superior quality. The new company is engaged in laying water mains to the schoolhouse and will start up with forty patrons. Pipes are distributed over Brunner and will soon be put in place so as to furnish plenty of good water to all who desire to use it.

New Ordinance for Electrical Inspection of Buildings

Des Moines, Ia.—Commissioner Roe's new ordinance providing for electrical inspection of all new buildings and a city electrical inspector has become a law upon its passage by the City Council. The new ordinance requires that every owner of a building wired for electricity take out an electrical permit, the proceeds of which will go into the city treasury. The cost to the builder depends upon the amount of inspection required. The position of city electrical inspector at a salary of \$1,400 a year is created. J. B. Dempster, who has had charge of the electrical inspection work for the past six years, will be appointed to the new position. He has been known as assistant city fire inspector and has received \$1100 a year.

FIRE AND POLICE

Fire Prevention Inspectors Busy

Flint, Mich.—After a day of hard work, members of the Michigan State Fire Prevention Association who have been investigating the condition of local property in respect to the possibility of fires from carelessness say they are satisfied that the general inspection of the different cities and towns of the State will be a good thing. Flint is the first city in the State to be inspected since the organization of the association in Detroit some time ago. Many defects in property were found, but in every case where they were pointed out the inspectors found the property owners ready to comply with the requests made for improvements. In two instances in the downtown district large quantities of dynamite were found stored in hardware stores, and, as a result of a conference with the local hardware dealers, it is expected the dealers themselves will be before the Common Council at its next meeting and ask that an ordinance be passed prohibiting the storing of explosives in the business district. Several of the moving picture theaters were declared to be a menace to public safety, and it is probable that many changes will be made in this class of theaters in the near future. Gasoline in large quantities was also found stored in many buildings, and many basements were found filled with rubbish.

To Enforce Ordinance on Burning Brush

Pasadena, Cal.—Acting Police Chief W. H. Copping has announced that he will arrest all persons guilty of burning brush or otherwise kindling fires contrary to the section of the ordinance below. The prevalence of many brush fires started after dark in both Fire Sections No. 1 and 2 has not only gotten on the nerves of the fire department and brought the firemen out of their beds in the wee small hours, but has caused the police department to take proper measures for the protection of life and property. Special officers will be detailed to various sections of the two fire districts to enforce the ordinance, as follows: "It shall be unlawful within Fire District No. 1 to set fire, ignite, or burn any material in the open air, except between the hours of 6 a. m. and 8 a. m., and then only at a distance of not less than twenty-five feet from any building or structure, and only under competent supervision. This section shall also apply to Fire District No. 2, except that material may be burned in said district at any time between the hours of 6 a. m. and 12 o'clock midday."

War On City Fire Hazards

Boston, Mass.—Plans for the campaign to rid the city of some of its worst fire hazards were mapped out at a conference which Mayor Fitzgerald had with Fire Commissioner Daly, Building Commissioner Everett and Chairman Durgin of the Board of Health. Commissioner Daly was instructed to direct the fire chiefs to make report of all old and dilapidated buildings that are unoccupied, and to have the reports submitted to the building department. Mr. Everett shall order the owners of the buildings to repair or demolish them within reasonable time. Buildings not demolished or repaired shall be reported to the Mayor and the City Council, who shall give a public hearing before final action may be taken.

Fire System Stands Test

Marion, Ind.—A final test was given the new Gamewell fire alarm telegraph system recently installed in the Central fire station by Charles Maulen, representing the Gamewell Company of New York. The new four-circuit automatic storage battery switchboard and all other appliances have been properly installed and are ready for use. Members of the central station made the alarm boxes on all four circuits last week in order to complete the test and alarms were sounded from each box. In order that the department might not mistake the test for a regular alarm, two short taps of the gong were sounded from the box just before the lever was pulled. The indicator registers and repeats the alarm four times and during the entire test not a mistake was made. The fire alarm system is now perfect in every feature and detail and the city is said to be on an equality in this respect with the larger cities of the United States.

Water Throwing Tests Satisfactory

New Castle, Pa.—In the presence of city officials, Councilmen, fire chiefs from Cleveland, Youngstown, Sharon, Beaver Falls, New Brighton, Greenville, Garrettsville and numerous other neighboring cities witnessed the water-throwing tests for the new Knox auto fire engine recently secured by the city. The results of the test will be made known to the city Councilmen when the question of the purchase of the machine will be decided upon. Speed tests have recently been made and the machine appears to give satisfaction to local officials and firemen.

Saginaw, Mich.—The auto fire engine was given three tests, the first at Battery Place, lasting but ten minutes, owing to a minor part meeting with an accident, but later tests were made at the hydrant at Court and Fayette and Court and Hamilton. Through two lines of hose 100 feet long, 150 pounds of pressure, or the full force of the auto engine, pumped pressure at the nozzles up to 130 pounds, which was sufficient to throw water clear across the Battery place. The hydrant at the corner of Fayette and Court was inadequate to meet the suction of the engine. Through two inch and one-eighth stream the engine pumped out 600 gallons a minute, while 500 gallons were pumped through inch and a quarter nozzles. Chief Wallis estimated that the stream was fully 125 feet in height. The engine made the run from No. 3 barn to the corner of Court and Fayette in five minutes.

New Plan Affects Police Pensioners

South Bend, Ind.—A plan whereby city sanitary officers will be taken entirely out of the jurisdiction of the police department and placed in charge of the health bureau was taken up at a special meeting of the Board of Health and indications are the arrangement if carried into effect will create an uproar among the police. The Board of Health and Public Safety propose to make the transfer which if carried out will deprive three of South Bend's oldest policemen of benefit from the police pension fund. According to the rules of the pension fund a policeman after he has been on the department for twenty years may retire on a pension of \$40 a month. If he has been in the service for twenty-five years he draws a pension of \$50 when he quits the department. As the Board of Health policemen are old men they are seriously objecting to the proposition of the city boards.

GOVERNMENT AND FINANCE

Cost of Errors to City

Olympia, Wash.—In the report of the State Bureau of Inspection for the town of Buckley, Pierce County, which has been placed on file with the Attorney-General, it is shown that in the period from January, 1902, to August 10, 1911, errors made by the city officials cost the city a total of \$274.68. Clerical mistakes cost the city \$85. However, every cent of the \$274.68 has been remitted to the county. Errors in collecting interest on the daily deposit amounted to \$185.73. The assets of the city amount to \$60,000, and included among the resources of the city is a gravity system of water supply valued at \$38,000, but which is probably worth about \$75,000, the former being the cost of construction. Real estate amounting to \$1,500 is owned by the municipality, while fire apparatus is owned which is valued at \$700. Cash on hand amounts to \$14,000. When the liabilities are deducted from the assets \$11,532 in cash remains. The city has a warrant debt of \$28,300, while the bonded indebtedness is \$18,000.

Commission Government Starts in Maine

Gardiner, Me.—Gardiner will be the first city in Maine to be governed by commission, the citizens at a special election voting to adopt a new charter providing for a commission government of three men by a vote of 723 to 181. There was no organized opposition. Gardiner was incorporated as a city in 1850 and besides a Mayor is at present governed by six Aldermen and eighteen Councilmen. The new commissioners under the provisions of the new charter will appoint all subordinate officers and receive salaries of \$1,000 each, with \$1,200 to the man to be chosen as Mayor.

Ridgewood Adopts Commission Rule

Ridgewood, N. J.—Commission government won in Ridgewood after the liveliest campaign waged here in many a year. The result is a big victory for the Voters' League of Ridgewood, of which Lewis R. Conklin is president, and which rendered splendid services in the way of arousing the people of Ridgewood to a realization of their opportunity. The crowning effort of the Voters' League was the big mass meeting in the Ridgewood Opera House, when Judge Carey made a speech that roused his hearers to a high pitch of excitement. The opponents of commission government conceded that Judge Carey's strong presentation of the case made many votes for commission government.

New Administration Makes Changes in City Affairs

Suffolk, Va.—Under the municipal administration of Mayor Holladay and his new council there are various changes being inaugurated in the conduct of city affairs. Among the numerous ordinances adopted was one entirely changing the order of business in the running of council meetings. Another ordinance repeals an old law providing for three men on standing committees. The clerk of the market was made city sanitary inspector without extra pay. If he hires an assistant inspector the salary must be paid out of the clerk's own pocket. Fines were provided for any persons who obstruct the sanitary inspector in the discharge of his duties. The new 20,000 word rules to govern the police department were adopted without a protest. There was a petition signed by upward of forty persons asking that East Washington street be paved from the Norfolk & Western to the Atlantic Coast Line Railroad to cost several thousands of dollars and petition for sidewalks on other streets was referred to the street committee.

Municipal Valuation Increases

Waco, Tex.—Property owned by the city, including parks, the city hall, fire stations, etc., aggregates a total value of \$807,525, according to an appraisement made by three real estate men named by the city commissioners. This is quite an increase over that given last year.

Nearly All City Departments Have Unexpended Balance

Louisville, Ky.—The annual report of City Comptroller Samuel M. Wilhite for the fiscal year 1911, submitted to Mayor Head, shows that nearly every department of the city lived below its 1911 appropriations. The police and fire departments especially show large balances to their credit, while the unexpended balance for all city departments shows in round figures the sum of \$196,380.15, against a balance of \$178,010.02 at the end of the 1910 fiscal year. The unexpended balance for 1911, against which there is no claim, is \$132,247.92. The report, according to Mr. Wilhite, is one of the most flattering ever compiled, and shows the finances of the city to be in a very sound condition. The report shows that the city is being run at the least possible expense to the taxpayers, and speaks well for the business-like methods of the present administration.

New Books to Make City Records More Complete

Dallas, Tex.—City Auditor Hughes Oliver begins with the August monthly report of the city's finances to use a new style of report form. This shows in brief summary the receipts for the fiscal year, for the last preceding month and the totals, the disbursements for the fiscal year, for the last preceding month and the totals, the cash balance, the overdraft for each fund and the total for all. These items are in a single line across the page for each fund. At the bottom are shown the recapitulation and the reconciliation, the last table being a showing of the cash balance in the hands of the treasurer, the cash balance as shown by the auditor's books and the outstanding warrants, the difference between the two sets of books. Added pages will take the city's twelve budget funds, showing in detail the receipts and disbursements of each and the condition and the close of the month reported.

Irvington to Vote on Commission Form

Irvington, N. J.—Voters will have an opportunity to-day, Sept. 27, to vote on the commission form of government. Lists containing forty-one additional signers were filed in the County Clerk's office to cover discrepancy in original petition.

STREET CLEANING AND REFUSE DISPOSAL

To Draft Garbage Can Bill

St. Louis, Mo.—A conference between Gerald B. O'Reilly, president of the Real Estate Exchange; F. W. Mott, chairman of the Public Service Committee of the exchange, and Roger N. Baldwin, secretary of the Civic League, has resulted in an agreement by which a new garbage can ordinance is to be drafted and submitted to the health commissioner. This ordinance, if adopted, will repeal the ordinance passed in 1909, and known as the Howe ordinance, the enforcement of which recently has aroused protests from the real estate interests. The 1909 ordinance makes the owner of every house responsible for keeping the house supplied with a waterproof garbage can. The proposed new ordinance will place the responsibility of furnishing the garbage can on the occupant of the property, whether owner or tenant, for all dwellings occupied by four families or less, which will include the four-family flat. For tenements and apartments of larger size the owner will be obliged to supply cans or a garbage receptacle of a sanitary character. The Real Estate Exchange desires to get an ordinance which will be indorsed by the health commissioner and which he may have introduced as a Health Department measure.

To Compel Clean Sidewalks

Denver, Col.—A bill for an ordinance amending Section 1643 of the Municipal Code has been introduced in the Council by Supervisor Spengel on recommendation of the Board of Public Works which supplies a deficiency in the existing laws in that it will enable the board to carry out the intention of the ordinance in compelling owners and occupants to keep the sidewalks clean and the weeds cut. The amendment provides that owners or occupants of houses, stores and other buildings and owners or agents of vacant lots must keep the sidewalks and gutters in front of or adjoining their property clean and free from dirt, snow, ice, weeds, debris and other obstructions, and shall remove same immediately after they have accumulated. The penalty is \$5 to \$50 fine. The Board of Public Works may notify said owners or tenants to remove the obstruction in from two to thirty days, failure to comply resulting in the work being done by the city or by contract. A certificate will be issued to the party doing the work to cover the expense, said certificate to draw 1 per cent interest per month and to be a lien on the property.

Street Cleaning Force Reduced

Muskogee, Okla.—With the laying off of thirty laborers in the employ of the Street Cleaning Department protests came from many business men, who declared that the streets in the business section are in a filthy condition. No explanation is given for the reducing of the force. The appropriation for street cleaning for the year was \$36,000.

Street Cleaning and Garbage Facilities Enlarged

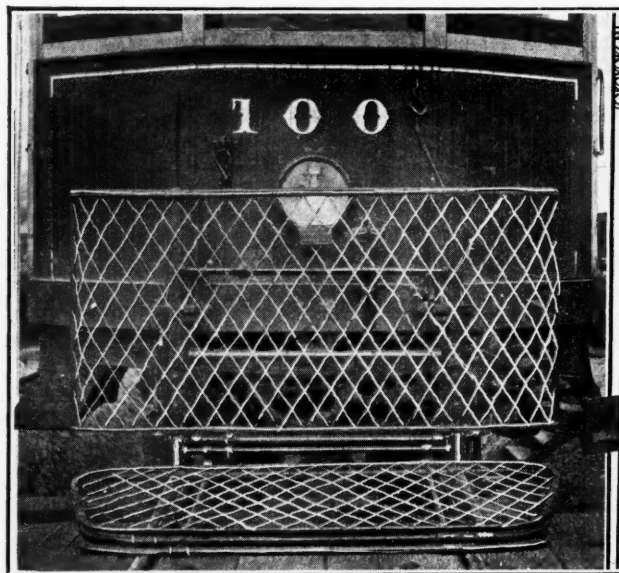
San Antonio, Tex.—In the annual report of Dr. Burg, City Physician, relative to the garbage system, he said: "The Street Cleaning and Garbage Department's working facilities have been greatly enlarged. If results, especially in regard to the removal of garbage, have not been so satisfactory it is attributed to the tremendous growth of our city. I do not doubt that our administration will do its utmost to enlarge and modernize the system so that it should equal the best of any city of its size in the country."

The same topic was discussed at a conference of city officials and citizens held by Council. The Mayor stated his position in commendation of the present burning method, and the Aldermen were of the opinion the entire matter well might be investigated with a view of ascertaining whether a plant centrally located would dispose of the dumpings from all parts of the city more quickly and with better sanitary safeguards. The Aldermen and Mayor Callaghan expressed their approval of the use of covered garbage wagons and believed that more teams should be used to cover a wider territory daily. The principal point brought out in the discussion was the need of shorter hauls to district dumping places and a system of removing the contents of these local receivers to the burning places.

RAPID TRANSIT

New Fenders for Street Cars.

Portland, Ore.—Portland's street cars are now being equipped with the Nelson air controlled safety fender, in accordance with the terms of an ordinance passed by the council. A carload of the fenders has arrived from the factory at Minneapolis, and they are being installed at the Portland Railway, Light & Power Company's plant. The Nelson device is air controlled and is what is known as the projecting type of fender, instead of the wheelguard, which sets underneath the front end of the car. The projecting fender is new to the City of Portland, the wheelguard having been used exclusively in this city heretofore. The advantage claimed for the projecting type of fender is that it will pick a pedestrian up before he is thrown under



Courtesy The Oregonian, Portland, Ore.

FENDER FOR PORTLAND CARS OPERATED BY AIR

neath the car. It is admitted by the officials of the fender company, as well as the street railway officials, that it may be some time before the teamsters, auto drivers and pedestrians of Portland become accustomed to the projecting type of fender. The Nelson fender is the only fender that is operated by air, and Portland will be the first city to have its cars equipped with the perfected device. By throwing his brake handle clear over, the motorman opens a valve which admits main reservoir pressure into the fender cylinders and throws the fender instantly to the rail. An automatic rod carried three inches in front of the fender apron performs a similar service in case the motorman fails to see a person on the track, thus operating the fender automatically and setting the brakes on the car at the same instant.

New Electric Line to Be Built

Fremont, O.—Albert H. Close, of Toledo, and A. H. Jackson, of Fremont, Ohio, have obtained a franchise from the Commissioners of Seneca County for a new electric line that will connect Fremont and Tiffin. The franchise provides that the work on the line shall begin not later than July 1, 1912. Applications for franchises have been made to the City Councils of Tiffin and of Fremont. Application also will be made to the Commissioners of Sandusky County.

To Construct Municipal Railroad

Seattle, Wash.—Two bills relating to the construction of a municipal street railway have been recommended for passage by a Council committee and will go before the Council at next meeting. One of these bills directs the corporation counsel to proceed with a consolidation suit for the acquirement of the Seattle, Renton & Southern Street Railway Company's property south from Main street, while the other provides for the construction and operation of a line between the present terminus of the Seattle, Renton & Southern at Stewart street and Third avenue to Salmon Bay.

MISCELLANEOUS

New City Hall to Be Imposing Structure

Oskaloosa, Ia.—Oskaloosa's new municipal building as planned and adopted by the Council will be an imposing and handsome structure of brick and stone, rising to the height of three stories, with tile roof and tower. The building, of which the new Fire Department station is a part, will occupy the city lots, 80 x 120 feet, fronting on Market street. Sixteen feet and 6 inches are allowed for the basement story, which rises 12 feet above the sidewalk, making the basement floor only 4 feet and 6 inches below the sidewalk level. Entrance to the building is given by five granite steps, which lead to a vestibule, and from this flights of a few steps give way to either basement or the first floor proper. In the basement are the Mayor's court and the city jail, with modern cells. The Street Commissioner has an office apartment in the northwest corner of the building and rooms are provided for city property, tools, etc. A vault is provided for records of the police court and commissioners' office. A public toilet also has been placed on this floor.

To Purchase Municipal Farm for Prisoners

Tacoma, Wash.—An honor system for prisoners probably will be put into effect by Commissioner of Public Safety F. H. Pettit when the proposition to purchase a municipal farm for prisoners is carried out. Several sites south of the city have been visited by the municipal commission, but none has been definitely decided on. Provision for the purchase of the 160 acres, more or less, which the city will need will be made in preparing the annual budget. With the inception of the municipal farm plan for prisoners, the idea of constructing a new jail, as contemplated several months ago, was abandoned, as the present prison will be operated until the municipal farm project is completed. According to Commissioner Pettit, provision for the farm will be made in a contingency fund to be provided for in the 1912 budget. The contingency fund will contain \$150,000 to be used for the municipal farm and similar projects. "Aside from the humanitarian standpoint, I believe a municipal farm for prisoners would be a money saver," said Commissioner Pettit. "Tilling the farm would increase its value, and the prisoners could almost pay their upkeep in that manner. I intend as soon as the farm is established to install an honor system among those on the farm, allowing them to sleep in different buildings about the farm and not coop them up in cells. The present jail could be abandoned except for use as a temporary detention station."

City Officials Enthusiastic Over Park Development

Cincinnati, O.—That the park commission has made good was the unanimous conviction expressed by the members of the party of city officials who, as guests of the park board, made a tour of inspection of the present park system of the city recently. The tour evolved a succession of big surprises to the members of the party, and each official declared he had had no adequate conception of the magnitude of the work and the rare judgment evinced by the commission in the aggrandizement of the park system since the funds from the \$1,000,000 bond issue have been available. Thirty-one parks and playgrounds were visited, sixteen of which have been acquired since January. In the older parks and playgrounds big improvements are under way or nearing completion, which transforms the whole character of the places, adding to their beauty and attractiveness, and will go far to make the Cincinnati park system one of the finest in the world.

Would License Trading Stamp Firms

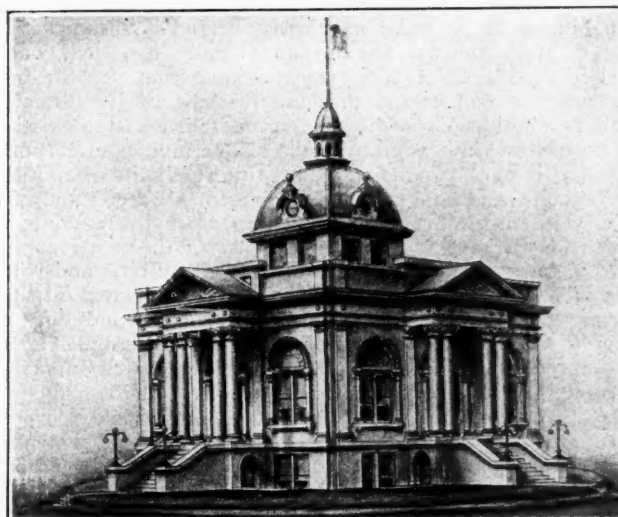
Rome, Ga.—At a special meeting of City Council an ordinance was passed imposing a license of \$1,000 per annum on trading stamp companies doing business in the city of Rome. Merchants handling the trading stamps state, however, that this ordinance will not stop the business. The ordinance was introduced by Alderman May, who stated that he thought this action should be taken. Alderman Powers explained how the trading stamp companies operated and said that a prohibitory license was exacted in many cities and towns. The ordinance was unanimously passed.

Proposed Public Comfort Station

Paris, Tex.—In writing about the proposed public comfort station, Mayor McCuiston said:

It is to be constructed in the center of the public square, thus relieving the monotonous appearance of the old market square, and will present the appearance of a civic center.

We believe that this enterprise contains some features that are not commonly embodied in public comfort stations. It is our purpose to emphasize the rest-room feature, with special reference to women shoppers. The whole undertaking will be rendered more valuable by the further addition of features which are historical and memorial in character. There will be tablets



Courtesy Dallas Morning News.

BUILDING CONTAINING REST ROOMS IN PUBLIC SQUARE

inlaid in the halls upon which will be chiseled the leading historical events of the city. Others will give the names of our citizens who have distinguished themselves in State and National service, and whose memory we desire to perpetuate. We believe that a plan embodying the public comfort features, the rest-room features and historical and memorial hall features combined, is not only unusual, but that it is entirely practical and one which could be appropriately and fittingly constructed in a great many of the cities of Texas where unsightly squares now exist.

City Wins Telephone War

Springfield, Mo.—In accordance with terms of a franchise granted to the Ozark Bell Telephone Company, ending a controversy over telephone rates, the company said that \$400,000 had been set aside for improvements, dependent upon the settlement of an injunction suit in the United States Circuit Court. The rate is reduced on business telephones from \$42 per year to \$36, and from \$24 to \$22 per year on independent residence service. Other concessions for an eleven-year franchise were the payment of \$1,000 annually to the city, a bond of \$25,000 that \$200,000 would be spent in a year in buildings, removal of poles and wires from the main business streets and the payment of all costs and attorneys' fees in the six years' litigation which preceded the compromise.

Local Beetle War Praised

Newark, N. J.—For the purpose of viewing the results accomplished by the local Shade Tree Commission in keeping down the ravages of the elm leaf beetle, Ephraim P. Felt, State Entomologist of New York, made a tour of Newark. He was accompanied by Carl Bannwart, secretary of the commission, and City Forester Walker. Mr. Felt said that cities in the Empire State had experienced the beetle ravages all summer and the state had been appealed to for aid. Desiring to prove that a city could effectually fight the bugs, he came here. He expressed gratification at the work carried on in Newark, and congratulated the local officers on their work.

New Concrete Bridge Accepted by City

Danville, Va.—The new concrete bridge across the Dan River at Union street has been turned over to the public, having been accepted by the city last week. The bridge is 1,064 feet in length, and contains thirteen arches, each span being about 8 feet in length, has a driveway of 20 feet and is 24 feet above the low-water mark. It is built of reinforced concrete, and will be illuminated with clusters of electric globes. The bridge was constructed at a cost of about \$40,000.

LEGAL NEWS

A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities

Water Works—Property Exempt from Taxation

Board of Water Com'rs of City of Hartford vs. Town of Bloomfield.—General Statute 1902, providing that land owned by any municipality to create or furnish a water supply for its use shall be exempt from taxation when the inhabitants of the town in which the land is situated have the right to the use of and do actually use such water supply on the same terms as the inhabitants of the municipality, but otherwise the land shall be subject to taxation, is a limitation on the exemption from taxation existing in the general law whereby lands of one municipal corporation for its public good, situated within the limits of another, are exempt, and land taken in a town for a water supply for a city is exempt from taxation only when the inhabitants of the town have the right to the use of the water supply on the same terms as the inhabitants of the city, and when the inhabitants of the town actually use the water on such terms. A municipal agency with the power and duty to supply water to a city and to extend its mains and laterals through a town within which land for a water supply is located, ought not to be compelled to build mains or laterals, unless they are to be used so as to yield a proper return on the outlay, and a regulation, recognized by the Legislature, that applicants for connections must give bond conditioned on the annual receipt by the agency for water consumed in the territory supplied of 10 per cent of the cost of the extensions, will not be deemed unreasonable, in the absence of an express finding that it is unreasonable.—Supreme Court of Errors of Connecticut, 80 A. R., 794.

Highways—Changing Width

Town of Red Bluff vs. Walbridge.—A county surveyor not being authorized to cut down the width of a highway, his direction to one, who had his fence in the highway, to move it back to a certain line, did not have the effect of cutting the highway down to such line, it being, as a matter of fact, still wider. Title to a public street cannot be acquired by adverse possession except where the public use has been abandoned by competent authority.—District Court of Appeal, California, 116 P. R., 77.

Street Extensions—Assessments of Benefits

Arthur Briscoe, Appt., vs. Cuno H. Rudolph et al., Commissioners of the District of Columbia.—Private property is not taken for public use without compensation under the act of February 10, 1899, which provides that one half the amount awarded as damages in the street extension proceeding authorized by that act is to be assessed against the lands within a designated area as benefits, considering the benefits received by each lot within such area, where there is nothing to show that the actual assessments thereunder are in substantial excess of the benefits.—31 S. C. R., 679.

Road Districts—Incorporation

Incorporated Town of Valliant vs. Mills et al.—Section 7832 of Compiled Laws of Oklahoma of 1909, which provides that "each incorporated city of more than 300 inhabitants shall constitute a separate road district," etc., section 847, defining the powers of the board of trustees in cities, towns, and villages, section 942, defining the powers of cities, towns, and villages over streets and alleys, and section 964 which provides that "all road taxes collected as personal taxes from residents of any incorporated town or city, and all road taxes collected on account of real or personal property situated within any incorporated town or city by the treasurer of the county in which such city or town is located, shall be turned over quarterly by such treasurer to the treasurer of such incorporated town or city to be expended under the direction of the city council of such city or the board of trustees of such town, as the case may be, for the improvement of the streets or bridges of such city or town or of the roads approaching thereto," were not repealed by certain sections of chapter 99, Comp. Laws Okl. 1909, entitled, "Roads, Highways and Bridges."—Supreme Court of Oklahoma, 116 P. R., 190.

Water Works—Bonds—Statement of Purpose

Corker vs. Village of Mountainhome.—A village ordinance and a notice of election, which state the purpose of a proposed bond issue as follows: "To provide the funds necessary to pay the cost and expense of the installation and construction of a complete water works system for the village of Mountainhome, and to purchase a site and location for a power house and water power rights for the purpose of pumping water or any other power or machinery that may be found necessary, for the purchase of materials for said works and improvements, and for the construction of the same"—are in substantial compliance with the provisions of section 2316 of the Revised Codes, and state and propose only a single purpose, namely, the installation and construction of a complete water works system for the village.—Supreme Court of Idaho, 116 P. R., 109.

Street Railroads—Nuisance—Abatement

City of New York vs. Montague et al.—Where, in a suit by a city against a street railway company and its receiver for the abatement of a nuisance, caused by the worn and defective rails in the streets, the facts showed that the receiver held possession pending a foreclosure action against the company, and that he had no funds with which to remove the rails, or to replace them with new ones, the court could order him to surrender possession to the city to enable it to remove the rails, and the mere fact of the appointment of the receiver did not prevent the action and the award of proper relief.—New York Supreme Court, 129 N. Y. S., 1085.

Loan to City—Void Note—Rights of Holders

Brown et al. vs. City of Newburyport.—Certain notes, purporting to have been executed to evidence a loan to defendant city, were void on their face. One of the notes was negotiated to plaintiffs, and the proceeds deposited in the city's bank account, and immediately used by the city treasurer to cover his defalcations. Held, that the fact that the proceeds were so deposited was not sufficient to charge the city with liability for money had and received; no benefit having been conferred on it.—Supreme Judicial Court of Massachusetts.—95 N. E. R., 504.

Injuries—Contributory Negligence

Flynn vs. Chicago City Ry. Co.—In an action for injuries alleged to have been caused by defendant's negligence, it was error to refuse to charge that if plaintiff by using his faculties with ordinary and reasonable care in looking out for danger could have avoided injury on the occasion in question, and he negligently failed to do so and thereby contributed to the injury, if he was injured, then he could not recover.—Supreme Court of Illinois, 95 N. E. R., 449.

Park Commission—Expenditures

Metz et al. vs. City and County of Denver et al.—The charter of the city and county of Denver empowers its park commission to expend the moneys collected by general taxation and appropriated by the charter to the maintenance and improvement of parks and parkways, wherever in the city and county in their judgment the needs of the respective park districts require its expenditure. The commission is not required to expend such moneys in the respective park districts whence these money were derived by means of the taxation of the property therein.—United States Circuit Court of Appeals, 188 F. R., 187.

Municipal Corporations—Territorial Extent

Town of Constitution vs. Chestnut Hill Cemetery Association.—The petition for incorporation and the notices hereinbefore referred to to describe the territory to be incorporated as "including the territory within a radius of one mile from the Southern Railway depot at Constitution," in De Kalb County, Ga., a part of which territory was in De Kalb County and a part in Fulton County. The order for incorporation provided that "said incorporation shall extend one mile in every direction from the present location of the Southern Railway depot at Constitution. Held, that the territory embraced within the corporate limits of the town was that which was included within a radius of one mile from the center of the location of the depot, and the order for incorporation was not void on the ground that the limits of the incorporation were indefinite.—Supreme Court of Georgia, 71 S. E. R., 1037.

MUNICIPAL APPLIANCES

Contractors' Locomotive Crane

A LOCOMOTIVE crane possessing features which make it valuable for contractors for sewer excavation and other work, such as lifting and placing heavy materials, is made by the American Hoist and Derrick Company, St. Paul, Minn. The crane is capable of traveling along a track, slewing and hoisting at one and the same time, and a reverse of all these motions can be made without stopping the engine. In traveling along the track and hoisting a load simultaneously the direction of travel may be instantly reversed, the process of hoisting continuing. It is claimed that the American is the only crane which can perform all four functions of traveling, slewing, hoisting, raising and lowering the boom (and reversing all the above motions) at one and the same time, each motion absolutely independent of the other. These motions are all controlled by the standard American friction clutch of the umbrella type, friction being obtained by means of a compound lever and toggle arrangement, which move the friction heads outwardly against a V-shaped cast iron surface, friction heads carrying hardwood blocks so fitted that the wear comes on the end of the grain. These friction heads are adjustable for wear. The use of this friction in the control of the various motions of the crane guarantees safety and long life to the machine, for while every function can be rapidly performed there is no possibility of shock, regardless of the operator, as there is always sufficient cushion or "give" to the friction to prevent jar; at the same time it will not slip, stick, nor wear out, and the slightest effort on the part of the operator will firmly engage it.

All controlling levers are banked at the extreme front corner of deck, where operator has at all times a full view of the work, and is not subjected to the heat of the boiler. This arrangement of manipulating levers enables the operator to accomplish excellent results, as no time is lost, and no great amount of exertion required in performance of any function of the machine.

Each lever performs two distinct

functions—for instance, pulling a traveling lever toward the operator causes the crane to advance on the track, pushing the same lever from him causes the crane to recede. All of the motions of the crane are imparted by this system.

The bogie of this machine is a single heavy gun iron casting. Its rigid character prevents the axles and gearing getting out of line, thus avoiding excessive friction wear and breakage. It also supports the roller path and renders it impossible to be twisted when running over rough track. The turntable consists of two circular bevel paths. The upper attached to the racer, the lower to the bogie. Both are made of gun metal. Between these paths are ten conical flanged steel rollers, held in place with a spacing ring. The racer is a massive gun iron casting, being a series of rectangular pockets, heavily ribbed throughout the interior. The rotation is effected by means of a large gun iron gear attached to the bogie, into which meshes a steel pinion on a vertical shaft. Power is conveyed to this vertical shaft by friction. The double cylinder engine always runs in the same direction.

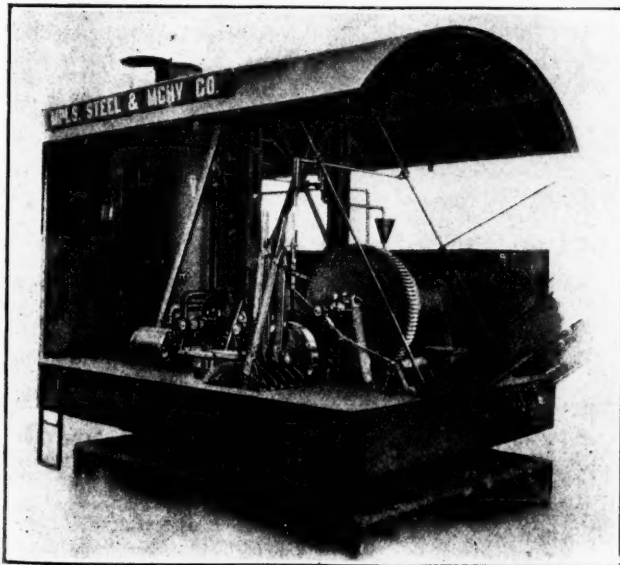
The specifications for the American 10-ton locomotive crane are briefly as follows:

Track gauge, 4 feet 8½ inches, 8 feet; capacity at 10 feet radius, 10 tons, 10 tons; capacity at 20 feet radius, 5 tons, 7½ tons; capacity at 30 feet radius, 2½ tons, 5 tons.

Double-cylinder engines: standard rating of boiler, 30 horsepower working pressure, 125 pounds; coal bunker capacity, 900 pounds soft coal; water tank capacity, 300 gallons; car wheels, 24 inches diameter; hoisting drum, holds single wrap 164 feet of ¾-inch wire rope; tractive power on level track, 3 loaded cars; maximum track grade, 6 per cent with full load; track speed, depending on load and grade, 300 to 500 feet per minute; slewing speed, 4 revolutions per minute; minimum radius of curve for practical work,

100 feet; weight of crane (approximately), 53,000 pounds; weight of counterweight (approximately), 3000 pounds.

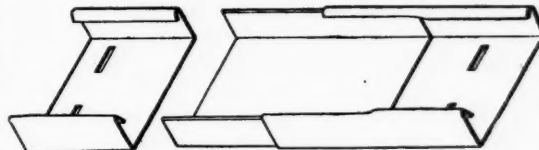
Special Long Booms are often a necessity, but should be avoided when possible. They must be operated more slowly, and the crane is much less stable. Following are the maximum and minimum radii and capacities: Track gauge, 4 feet 8½ inches, 8 feet; maximum radius and capacity, 40 feet, 1½ tons, 50 feet, 2 tons; minimum radius and capacity, 15 feet, 6 tons, 25 feet, 6 tons.



10-TON AMERICAN LOCOMOTIVE CRANE

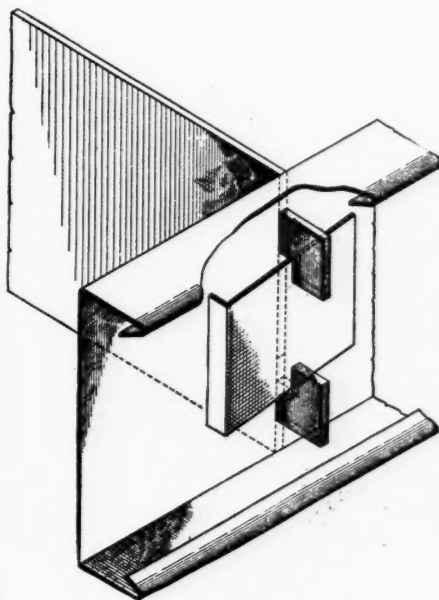
Pressed Steel Forms for Concrete Sidewalks

THE Berger Manufacturing Company, Canton, O., have placed on the market a pressed steel form for concrete sidewalks which are constructed on a new and simple principle. It is stated that the forms are 20 per cent lighter than other steel forms and not inferior in strength. Like other steel forms, they require no stakes. In setting up one side of the first length is lined up with the engineer's line and trued with a square. After this the alignment of the remaining lengths is practically automatic. This is on account of the slip joint, which requires no screws or



LONGITUDINAL JOINT OF BERGER FORM

bolts. One end of every length has a plain flange, which fits into the lapped flange of the next length. The joint is so tight that the mortar will not seep through. The side rails are easily and safely handled, as the outside edges are turned under so that even a careless workman is in no danger of cutting his hands. The cross plates are made in lengths of 2½, 3, 3½, 4, 4½ and 5 feet, so that a walk can be laid any of these widths. The cross plates fit snugly into either the flexible or rigid side rails at the point desired to make a square block, and are held securely in place by means of a spring wedge with a broad bearing surface. The spring wedge makes a convenient, easy means of securing the forms, yet holds them so securely and rigidly that there is no possibility of their coming loose. One reason these steel forms make the laying of concrete sidewalks easier and the finished job better is that there are no projecting rivet heads to interfere with the finishing tools. These steel forms are furnished either four or five inches in height, so that a walk can be laid to either depth. While light in weight and easily handled they are of ample strength, and withstand the



SPRING WEDGE JOINT OF SIDEWALK FORM

rough usage incident to this work. Naturally, they can be used over and over again. They save time in laying, setting up and truing to line, and they save time in removing the forms. All that is necessary to take them apart is to remove the spring wedge holding the cross plates and side rails together. The concrete does not adhere to the smooth surface of the steel, and this leaves the concrete clean and smooth.

The six-inch radius curves and flexible side rails used in connection with these steel forms permit the construction of curved walks and the joining of intersecting walks with practically no more trouble than in laying a straight walk. This eliminates the special wood forms usually required for this work.

Gasoline Driven Portable Mixer

THE Ransome Concrete Machinery Co., Dunellen, N. J., have placed on the market a portable mixer outfit for road work. A loading hopper is used in place of the usual pivot hopper. The mixer is thrown into contact by a friction clutch. The design is compact and simple.

This outfit is equipped with a 14 H. P. 2-cylinder gasoline motor and weighs approximately 14,300 lbs. The cubic feet of loose material necessary for the regular batch is 21, while the normal rated capacity per hour is 21 cubic yards of concrete. In the regular outfit of this design a gasoline engine of 10 H. P. is used and the extra power in this case was furnished in order to operate the hoist bucket at the same time the drum is fully loaded. This power is claimed to be a little in excess of the actual requirements, it being deemed advisable to have ample power in order that the machine could be operated to its fullest capacity.

The outfit is operated by one man. The discharge chute can be raised or lowered from its position or the clutch of the gasoline engine thrown in or out, while at the same time the skip car's movements are readily taken care of by a lever. The water tank after being set to supply a given amount of water, automatically attends to this, assuring a uniform mix.

This outfit can be moved along the

road from one point to another and the workman can be supplied continually with concrete, as the fixed batch hopper between the skip car and the mixer results in the mixing of a batch while another is being prepared.

A New Cement Gun

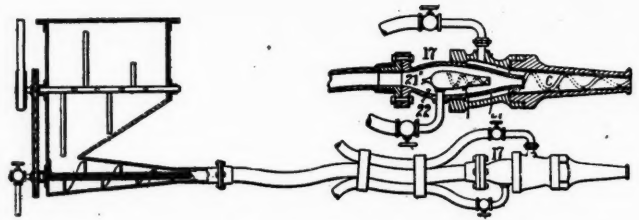
THE cement gun here shown was recently patented by Ernest A. Faller, of New York, and the patent has been assigned to the Cement Appliances Company of that city, which company will manufacture the device.

The invention, says the patent, is an apparatus for combining a substantially dry comminuted solid with a tempering liquid, and for delivering the compound in a wet or plastic state.

The principle, according to the inventor's claim, is as follows: "To produce in a suitable conduit a current of air, wherein solid particles are suspended, and to deliver into said current a jet of liquid. By reason of the separation of the solid particles in the air current, they are thus brought into contact with the liquid in the conduit, so that a more or less plastic compound is delivered from said conduit. In order to secure more intimate mixture of the particles and the liquid, I may impart either to the air current or to the liquid jet, or to both, a movement of axial rotation, preferably just before escape of the compound from the conduit."

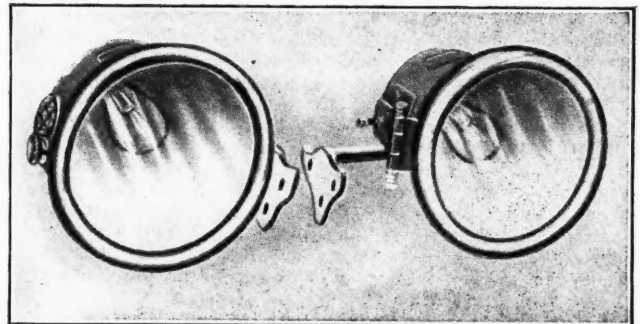
Electric Lights for Fire Apparatus

At a special request of several Fire Chiefs the Servus Rescue Equipment Company, of Newark, N. J., conducted a series of experiments in an effort to



NEW CEMENT GUN

produce a pair of lights for fire apparatus that would light up the road ahead and so give the driver warning of any obstacles in his way, serve as a warning to other vehicles and pedestrians and when the fire was reached aid in the location of fire plugs and provide street illumination at the fire. The greatest difficulty was found in securing an electric bulb that would stand the jarring and rough work, and this was finally overcome. Next in importance was the reflector which had to be so focused that it

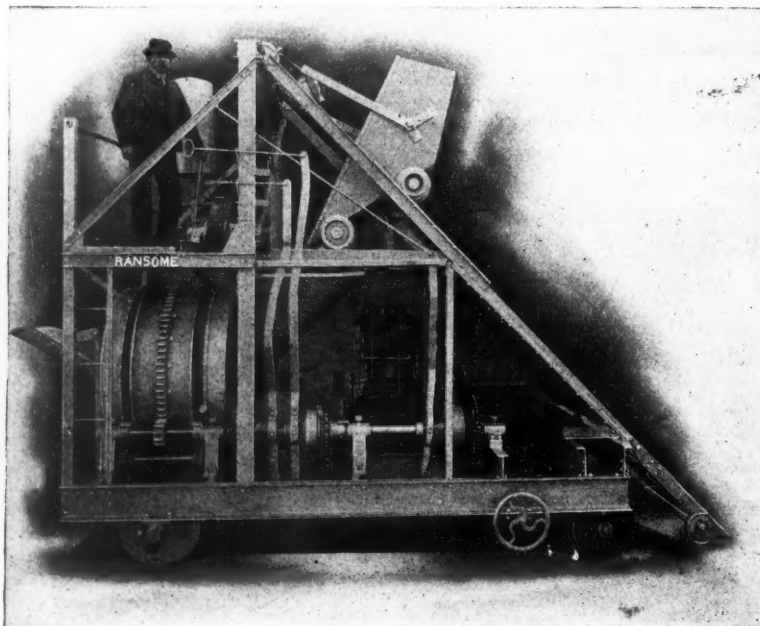


ELECTRIC SEARCHLIGHT FOR FIRE APPARATUS

would produce a penetrating ray and at the same time give a general diffused light. So well was this accomplished that a lamp bulb producing a 16-candle-power light was reflected into an illuminating unit equivalent to 80-candle-power. Next, various types of automobile light were tested to procure a suitable holder, but they all proved of too light a construction, and so suitable, heavy and handsome casings were designed. Two types were made, one having a 5-inch reflector, and designed for the Chief's buggies, and the larger having a 7-inch reflector, and special brackets for attaching to the uprights on fire apparatus. These lights are being supplied in sets, with electric storage batteries, switch, brackets, wire, etc., and full directions for installing, which can easily be done by any amateur electrician, and their real worth is being readily proved by the instantaneous demand that has met their introduction.

Wood Block Trimmer

A MACHINE for trimming old wooden paving blocks is in use in one of the boroughs of London, England. The machine, it is stated, removes the foreign substances adhering to the blocks, taking off the burred edges, and saws away used or uneven surfaces to any thickness. The capacity of the machine is 1000 blocks an hour. After the blocks have been taken up from the roadway they have to be separated before being placed in the machine. After the process the blocks are, of course, smaller and thinner, nevertheless valuable. The machine is a recent invention and only one so far is known to be in use.



RANSOME GASOLINE DRIVEN PORTABLE CONCRETE MIXER

NEWS OF THE SOCIETIES

Central States Water Works Association.—The fifteenth annual convention was held at the Hollenden Hotel, Cleveland, O., September 19-21. President Alba L. Holmes, Grand Rapids, Mich., occupied the chair at all the sessions. Mr. Holmes also occupies the office of secretary in the Michigan Engineering Society. Although the attendance at the sessions was somewhat limited in numbers, the interest was well maintained and the discussions active, the range of subjects being as large as is ordinarily handled by much larger meetings. The election of officers resulted as follows: President, W. J. Scroggins, Supt., Wheeling, W. Va.; vice-president, William Allen Veach, Newark, O. State vice-presidents, F. J. Brinkoetter, Quincy, Ill.; T. W. McNamee, Wabash, Ind.; W. H. Patton, Catlettsburg, Ky.; S. Bent Russell, St. Louis, Mo.; F. O. Collins, Hastings, Mich.; C. E. Inman, Warren, O.; H. C. Lea, Sharpsburg, Pa.; Fred Bosch, Whitewater, Wis.; Mentor Hetzer, Moundsville, W. Va.; secretary, R. P. Bricker, Shelby, O.; treasurer, A. W. Inman, Massillon, O.; executive committee, Fred B. Leopold, chairman, Pittsburgh, Pa.; C. W. Wiles, Delaware, O.; T. H. Verner, Pittsburgh, Pa.; finance committee, Wilbur Schofield, McMechen, W. Va.; W. B. Wilkinson, Pittsburgh, Pa.; F. C. Jordan, Indianapolis, Ind.

The sixteenth annual convention will be held in Detroit, Mich., in 1912.

On Wednesday afternoon the convention visited the Kirtland pumping station under the escort of Superintendent Leslie C. Smith. From that point they repaired to the plant of the Glauber Brass Mfg. Company, where they were received by the manager, Mr. Joseph Glauber, assisted by the heads of the sales departments, and were shown through the establishment, inspecting the finishing, foundry, casting and pouring plant and offices, and were interested in all they saw. The capacity of this plant is close to five tons a day of metal. In the specific line of water works supplies it holds a commanding position, and employs from 300 to 400 men. After going through the place the visitors were entertained with a Dutch lunch and presented with souvenir. President Holmes wound up the affair by proposing a resolution of thanks to the firm, which was adopted unanimously.

On Thursday afternoon, after the adjournment of the session, a trip was made to the Water Department Intake Crib, the party being in the care of Mr. Charles Goffing, M. E., of the Cleveland water department.

The opening session, so far as the delivery of addresses and reading of papers was concerned, was held on Tuesday evening. The address of welcome was made by Leslie C. Smith, superintendent Cleveland water department. He briefly reviewed the history of the water works from the time when in 1853 the municipality took over the private plant with a bond issue of \$500,000. C. W. Wiles, Delaware, O., responded. He referred to the fact that people everywhere were demanding purer water. He thought, however, that the water supply was often blamed for the presence of typhoid where the milk supply or flies were really at fault. E. P. Roberts, president of the Roberts-Abbott Engineer-

ing Company, and also president of the Cleveland Engineering Society, in the course of an address of welcome to the visiting delegates, referred to the good work done by the Smoke Prevention Committee of the Cleveland Chamber of Commerce.

The first formal paper was by John W. Hill, consulting engineer, Cincinnati, O., on "Steam Pollution in Ohio." In the course of the discussion, Mr. Leopold referred to an Imhoff plant being built near Baltimore. The plant will be located within a few hundred feet of some residences, and the results will be watched with interest. Mr. Wiles in discussing the paper again called attention to the part played by impure milk and flies in the spreading of typhoid. President Holmes referred to cases in Michigan where 40 deaths in one instance and 23 in another from typhoid could not be traced to water. Mr. Leopold quoted figures showing reduction in typhoid in cities where the water supply had been purified.

Mississippi Association of Civil Engineers.—With the intention and purpose of becoming to Mississippi in due time what the American Association of Civil Engineers is to the country at large, a number of well-known engineers and surveyors of this State have effected an organization, which will henceforth be known as the Mississippi Association of Civil Engineers. The plans for such an organization have been under consideration for quite a while past, and, acting on invitation of a number of the profession at the capital, quite a delegation of these knights of the chain, compass and rod met at Jackson last week for the purpose of organizing. The object of the gathering was to improve as far as possible the things pertaining to this important profession in Mississippi, one of the best and most useful, as well as indispensable, in the category of public service professionals. The civil engineers believe in the nobility and usefulness of their profession, and are desirous of preserving its integrity and standing so far as organized effort will accomplish that end. The association organized by electing the following as the first roster of officers: H. D. Shaw, Gulfport, president; J. H. Dorroh, University of Mississippi, vice-president; John I. Pierce, Jackson, secretary-treasurer. The first board of directors, in addition to the three officers above named, as selected is composed of A. L. Dabney, Clarksdale; H. M. Marshall, Vicksburg; J. H. Putnam, Hattiesburg; W. G. Wetmore, Meridian.

Southern Appalachian Good Roads Association.—The third annual convention of the Southern Appalachian Good Roads Association will be held at Roanoke, October 4-5, and large delegations are expected from the seven States, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Georgia and West Virginia, which are included in the membership of this association.

The Governors of the seven States interested in the convention have been asked to make addresses, and will be invited to attend the convention as guests of the city of Roanoke. While all seven of the State executives may not be able to attend the convention, it is known that the Governors of these States are strong good-roads advocates and are ready in every way possible to further the good-roads cause throughout the Southern Appalachian region.

League of Virginia Municipalities.

The sixth annual convention was held at Cape Charles, September 14-15. About sixty delegates from the principal cities and towns gathered at the Casino at 11.30. President R. E. Steed, city clerk of Norfolk, called the convention to order. The address of welcome was made by Hon. John T. Daniels, Mayor of Cape Charles, and response by Judge T. H. Willcox, vice-president of the Norfolk Board of Aldermen. After the opening exercises the delegates went aboard the steamer *Pennsylvania* for a trip to the Capes. On the steamer the morning program was continued, with addresses by Mayor J. G. Riddick, of Norfolk; Mayor J. Davis Reed, of Portsmouth; Major Maryus Jones, of Newport News; Rev. W. C. Foster, of Cape Charles, and Robert Brighton, auditor of Danville.

At the evening session, which was attended by a large audience, there were speeches by President R. E. Steed, city clerk of Norfolk; Dr. Ray Flannagan, State sanitary inspector; Dr. Powhatan S. Schenck, health commissioner of Norfolk; Hon. F. A. Sherman, ex-commissioner of Cedar Rapids, Iowa.

In the annual address President Steed said in part:

"City making is one of the sciences of the Twentieth Century. It has been made so by the demands of those who are taxed, that their cities shall be as carefully and economically managed as they themselves manage their business affairs. The result has been that those who govern cities are studying administrative problems more and more searchingly every year. How can they improve their municipal accounting systems? How can they raise the standards of their street paving and repair work? How can they provide more efficient police and fire protection? How can they draw contracts for public works better to protect their cities from overcharge and from faulty construction? Possibility of making city government an asset, and of capitalizing a city's attractions! advanced ideas along such lines as charters, forms of government, parks, playgrounds, health, sanitation, taxation, charities and corrections, schools, fire, police, etc.

"These are kindred subjects and items that these Annual Conventions call for, and they are discussed with force, earnestness and intelligence by men of large resources and national reputation.

"The commercial and business organizations of this State have been appealed to to use their influence in having the Councils and Mayors of their municipalities appoint delegates to this convention. Some have responded and acted quickly and effectively, the larger number, however, have not even done us the kindness to answer our appeal. Have the commercial and business organizations of the State no responsibility in furthering and encouraging the adoption of city plans for civic advancement and betterment? Their value as efficient agencies in promoting and advancing civic improvement work has been oftentimes demonstrated in other States. Are the business organizations of Virginia less active or patriotic than elsewhere? Their value to committees and to the nation at large, in their close affiliation with improvements have worked large results in many places."

At the second day's meeting an ad-

dress was made by Hon. Le-Grande Powers, chief statistician, Bureau of Census, Washington, D. C. He urged that all cities keep as far as possible statistics in regard to every branch of the municipalities of the death rates, fires, amount of paving and all matter that will be of special benefit to the census bureau. Frank H. Wentworth, secretary National Fire Protective Association of Boston, spoke on "Fire Hazard."

"The Function of the Public School" was discussed by J. D. Eggleston, Jr., Superintendent of Public Instruction, State of Virginia. Hon. John A. MacRae, Charlotte, N. C., spoke on "Good Roads." Hon. Clinton Rogers Woodruff, Secretary National Municipal League, Philadelphia, made an interesting address on the "Needs of Municipalities." Hon. S. Gordon Cumming, Hampton, Va., gave an interesting talk on "Public Service by Private Citizens." Hon. Barton Myers, of Norfolk, spoke of the "Value of Municipalities." Prof. C. Kent, P. H. D., University of Virginia made an address on "Planning City of the Future." The meeting then adjourned to meet at Alexandria the third Tuesday in September, 1912. The following officers were elected for the ensuing year:

President, A. B. Brockett, of Alexandria; first vice-president, D. C. Richardson, of Richmond; second vice-president, R. E. Steed, of Norfolk; third vice-president, Robert Brydon, of Danville; secretary-treasurer, L. C. Brinson, of Portsmouth.

The president was directed to appoint a committee of ten as delegates to the National League of Virginia which meets in Richmond in November.

International Association of Municipal Electricians.—About ten hundred members met at Young's hotel, Atlantic City, N. J., September 12, for the sixteenth annual convention.

The association was scheduled to meet in St. Paul, Minn. The place of meeting was changed because of the death of the late Stanley W. Manning, superintendent of the fire alarm telegraph system of that city, who was also chairman of the executive committee of the association, and it was decided to withdraw the proposed convention from that city.

An interesting exhibit was located in one of the parlors of Young's hotel. It included the latest inventions in the electrical line as well as the new improvements upon many appliances.

Enactment of ordinances in all cities maintaining an overhead wire system, making it a misdemeanor, punishable by fine or imprisonment for any person to climb a pole used for electrical supports or to handle wires of any description carrying currents without first notifying power plants to shut off the "juice" was the drastic proposition advanced by President H. C. Bundy, chief of the fire telegraph of Watertown, N. Y., during his annual address. Such laws, he declared, were the only correction and safeguard against the needless sacrifice of lives among electricians and others whose work carries them into dangerous proximity of the death that courses through the aerial wire system of every city.

The speaker asserted that the municipalities were oftentimes to blame through winking at the gross negligence and slack methods of supervision practised by companies holding franchises for overhead wiring.

"Somebody ought to be made re-

sponsible for the horrible electrocutions daily chronicled in the newspapers of our American cities. Perfection of a law that would fix this responsibility would soon cut down the needless death toll," he declared.

Devices of all descriptions are furnished for the protection and safety of expensive electrical installations; for the prevention of fires in buildings, but little or none is furnished by the majority of our cities for the protection of its employees who are daily coming in contact with the death dealing currents.

"During repairs all high tension currents should be shut off. Expediency is a great factor in police and fire alarm work, but a human life is of far greater value than the temporary discomfiture of some private or public institution or a business corporation."

President Bundy cited several specific cases where men met terrible deaths by electrocution while in the performance of their duty, among them that of a lineman in Philadelphia a few days before, where caution and the shutting off system might have saved them. The 200 conventioners, all of them heads of electrical systems on a large scale in all the important cities of the United States and Canada, pledged support to their chairman's preventive scheme.

Burial of all wires of fire and police alarm systems as soon as practicable was recommended by A. C. Farrand. "The absolute freedom from the effects of storms is sufficient to warrant serious consideration by those in charge of the safety of life and property in cities," the speaker said. "No better illustration of what one storm can do to overhead lines is necessary than the practical isolation of Washington from the rest of the world in March, 1909, during the inauguration of President Taft."

Mr. Farrand said that tile was best adapted for constructing wire conduits for city use and that while paper insulated cables were cheaper, moisture was liable to cause leakage, making rubber preferable in the long run.

International Association of Fire Engineers.—The thirty-ninth annual convention opened in Juneau Hall, Milwaukee, Wis., September 19. The members formed at 9:30 in front of the Plankinton House and marched to the Auditorium. Mayor Seidel, introduced by President John Thompson, Toronto, Ont., made the address of welcome. He said in part: "People in general are beginning to realize the responsibility that is placed on the fireman. They are beginning to realize that the fireman is a real benefactor to humanity. They are beginning to realize the importance of the fire department. For this reason no man should ever be discharged without first having had an opportunity to meet charges." He also made reference to the pension system, saying that every city should have a firemen's pension fund, and he ended his address with a few references to socialism and its principles.

The Mayor was followed by Mr. Thompson. During the outbursts of applause that came whenever Chief Clancy's name was mentioned, the Mayor sat upon the platform. Chief Clancy is now undergoing trial for alleged inefficiency. Frederick Morrison, Watertown, N. Y., responded to Mr. Thompson and he was followed by Fillmore Tyson, former Chief of Louisville, Ky., and former president of the

association. Mr. Tyson also eulogized Chief Clancy.

"I am sorry that Chief Clancy is not here with us to-day," he said. "My city wanted this convention this year, but we withdrew in favor of the man who has endeared himself to such an extent to this association."

The secretary was instructed to send a telegram expressing the sympathy of the convention for the following members who are detained at home because of illness: Charles S. Allen, ex-Chief, Trenton, N. J.; D. J. Donovan, Chief, Charlotte, Mich.; H. L. Marston, Chief, Brockton, Mass.; A. C. Hendrick, ex-Chief, New Haven, Conn.; S. J. Blair, ex-Chief, East Orange, N. J.; A. J. Cote, Chief, Woonsocket, R. I.

The afternoon meeting brought out a heated discussion on overinsurance and the evil of the present system of throwing financial safeguards around property.

A letter was read from the chairman of the New York legislative committee asking the co-operation of a committee so that the New Yorkers will get the benefit of observation in methods to preserve property and lives. The Pacific Coast Association of Fire Chiefs, holding a convention at Vancouver, sent a letter of greetings, together with a paper written by the Chief of Seattle, which was read later.

"Fire Prevention by Education Rather Than Legislation" was discussed in papers by H. C. Henley, Superintendent of the Fire Prevention Bureau, St. Louis, and A. V. Bennett, Birmingham, Ala.

"The people do not seem to realize that they are directly interested and that the destruction of property increases the cost of living," said Mr. Henley in the course of his remarks. "Legislation must be employed to keep down the fire loss. The States must have official investigation and prosecution, and I trust that in time some punishment will be provided for the person responsible for preventive fires."

"There could be no wiser economy inaugurated for the protection of life and property than to establish a department of fire prevention at Washington to act in concert with such a department in each capital and in each municipality, headed by the best experts that the country affords, to compile facts and data concerning every fire reported, giving the cause of the origin, the value and character of the property destroyed with suggestions as to how such fires could have been prevented," suggested Chief Bennett.

"We should teach our business man that his insurance policy should not act as a shield to responsibility. He should understand that he not only enriches himself by protecting his own property, but that he actually adds to his own wealth in protecting the property of his neighbor, because every species of property that is subject to taxation, when destroyed by fire, places necessarily a higher tax upon the property that is not destroyed."

"Also there is no branch of learning properly taught in the schools of the nation that would yield better results than a course of fire prevention."

In the discussion which followed Chief Hunter, Springfield, O., attributed many fires to overinsurance and on this point Chief Conway, Cincinnati, made a strong plea for a new insuring system, saying that in this country there is no more adjusting, but settling losses nowadays.

Chief La Moyne, Grand Rapids, surprised the Chiefs by saying that fires were a blessing where they destroyed dilapidated property and on which followed the erection of buildings which improved the city's appearance. Several Chiefs argued that the buildings should be removed by the city if they are eyesores. Chiefs Lynn, Cairo, Ill.; Knofflock, Mansfield, and others spoke on the subject with force. Chief Swingley, St. Louis, told of the system in vogue there, that of having an investigation of buildings every month.

Other papers treated of "Motor Apparatus Electrically Propelled," by W. H. Daggett, Springfield, Mass.; "Motor Apparatus, Gas-Engine Propelled," by Chief T. Ballantyne, Savannah, and Chief Arthur Aungst, Alliance, O.

Wednesday was given over to the exhibitors, who showed fire apparatus and appliances to the value of \$300,000 in the Auditorium. A parade of motor apparatus was held in the morning, followed by tests on the river front at the State street bridge. An aerial truck came in for the lion's share of attention. This truck, on which ladders can be raised in five seconds, is said to be the most expensive piece of fire apparatus ever made, costing \$13,500. Every variety of fire equipment was on exhibition at the Auditorium. This includes motor apparatus of all designs, fire hose, nozzles, alarms, oxygen generators for resuscitating purposes, smoke helmets, hose clamps, ballbearing axles, tires, hose, lighteners, harnesses, springs, searchlights and, in fact everything that is indispensable to fighting fire.

Composed of more than a dozen of the latest types of automobile fire apparatus, each equipped with a different kind of noise producer, the parade made the route over the downtown streets. There were automobile trucks, combination hose, chemical and engine apparatus, each equipped with a different kind of noise producer, the parade made the route over the downtown streets. One particular piece of apparatus has two gasoline engines, one to run the auto and the other to pump water. In addition there are ladders and a place for 1000 feet of hose; also a chemical tank and hose, combining everything that would be needed to put out a small fire.

In order to catch up with neglected business the fire chiefs held a night session on Thursday, when they adopted the stamp of the National Board of Underwriters on all fire hose, following a paper by Harry L. Cremer, Chicago, on "The Best Method of Selecting Hose for Fire Department Purposes" and an explanation of the manufacture of hose by W. C. Robinson, Chicago, superintendent of the Board of Underwriters' laboratories.

Other papers read were: "The Duties of State Vice-Presidents of the International Association of Fire Chiefs," by J. Q. Hawks, of Moline, Ill., and "Rubber Tires—Solid vs. Pneumatic," by Chief Charles Swingley, of St. Louis. Chief Hawks advocated the appointment of State vice-presidents by the incoming president.

The test committee, of which Chief Bennett, of Birmingham, Ala., is chairman, made its reports, its recommendations being that the committee in the future be named at the same time as the executive board and meet at least three days before the convention. It also suggested less hampering conditions for making tests.

The convention was opened Thurs-

day with the reading of a letter from D. C. Larkin, Dayton, Ohio, who has been a member 32 years and treasurer of the association 22 years. Mr. Larkin expressed his regret that he was unable to attend the convention and asked that his name be not presented for the office of treasurer again.

In his talk on "Standards of Drill and Discipline" Chief T. F. Owens, Denver, commented strongly on the fact that discipline should be of the strictest order. He said that disobedience should be followed by discharge, and reinstatement in such cases should be made impossible.

A petition from the chiefs of departments of second and third class cities asking that the National Board of Fire Underwriters change their insurance rating from fourth class to second class was presented. It was pointed out that these cities in reality had equipment of cities of the first class.

In a paper on "Compulsory Sprinkling of Basements" Chief W. H. Loller, Youngstown, Ohio, declared that all mercantile buildings should be compelled to put automatic sprinklers in the basements. The greater part of the morning was taken up with a discussion of "The Caliber of Fire Streams," a paper which was read by Charles H. Fox, Cincinnati, Ohio.

Over 700 chiefs and their wives enjoyed the hospitality of the Pabst Brewing Company Thursday afternoon on a trolley ride around the city, ending at Pabst Park, Whitefish Bay resort, where a "bratwurst" luncheon was served.

Concluding their convention with the annual election the fire chiefs adjourned Friday afternoon until September, 1912. The election of officers was brought about without any opposition, the slate going through as follows: President, W. H. Loller, Youngstown, Ohio; first vice-president, H. F. Magee, Dallas, Tex.; second vice-president, T. W. Haney, Jacksonville, Fla.; secretary, James McFall, Roanoke, Va.; treasurer, George Knofflock, Mansfield, Ohio.

By 6 o'clock half of the visiting army of firefighters had left for Chicago, there to inspect the municipal congress.

With Sioux City, Denver and Boston nominated for the next convention the morning session of the International Association of Fire Engineers extended until far into the afternoon, ending in a victory for Denver.

National Municipal League.—The annual prize established by the National Municipal League in memory of William H. Baldwin, Jr., the late president of the Long Island railroad, and awarded each year to the college student writing the best essay on some topic of municipal government, has been awarded to G. H. McCaffrey, Jr., of Boston, a Harvard junior.

Calendar of Meetings

- September 26-28.**
Kansas State Firemen's Association.—Twenty-fourth Annual Convention, Wamego, Kan.—K. D. Doyle, Secretary, Wamego, Kan.
September 26-29.
American Society of Municipal Improvements.—Grand Rapids, Mich.—A. Prescott Folwell, Secretary, 239 West Thirty-ninth street, New York City.
September 27.
Connecticut State Fire Chiefs' Association.—Convention, Hartford, Conn.
September 27-28.
Connecticut State Firemen's Association.—Convention, Hartford, Conn.—R. V. Magee, Secretary, Watertown, Conn.
October 4-6.
League of American Municipalities.—Annual Convention, Atlanta, Ga.—John MacVicar, Secretary, Department of Streets, Des Moines, Ia.

October 9-13.

American Electric Railway Association.—Annual Convention, Atlantic City, N. J.—H. C. Donecker, Secretary, 29 W. 39th St., N. Y. City

October 17-19.

American Railway Bridge and Building Association.—Annual Convention, St. Louis, Mo.—C. A. Lichty, Secretary, C. & N. W. Ry., Chicago, Ill.

October 18-20.

American Gas Institute.—Annual Convention, St. Louis, Mo.—A. C. Beadle, Secretary, 29 W. 39th St., N. Y. City.

November 13-16.

National Municipal League.—Annual Meeting, Richmond, Va.—Chilton Rogers Woodruff, Secretary, 705 North American Building, Philadelphia, Pa.

November 21-24.

American Association for Highway Improvement.—First Annual Convention, Richmond, Va.—Logan Waller Page, President, United States Office of Public Roads, Washington, D. C.

PERSONALS

BECK, WILLIAM, Brownsdale, Mass., many years Chief of Police of Milwaukee and one of the best detectives in the West, is dead at the age of 78. During his tenure of office he served the national government by running down counterfeiters.

BURKE, R. B., Richmond, Va., has been appointed acting chief engineer of construction of the Chesapeake & Ohio Railway, to succeed Henry Pierce, who died recently.

CUSHING, EUGENE B., Los Angeles, Cal., has been appointed inspector of public works.

GOODWILLIE, D. H., Toledo, O., the new superintendent of the City Water Works, has the distinction of being one of the youngest water works superintendents in the country, being only 25 years old.

HEUCHLING, FRED G., Chicago, Ill., has been appointed Superintendent of West Park System. Mr. Heuchling has been engineer for the Chicago Civil Service Commission.

LANZA, GAETANO, Boston, Mass., professor of theoretical and applied mechanics, in charge of department of engineering of Massachusetts Institute of Technology, has been made professor emeritus.

McAGREE, WILLIAM, Urbana, O., has been appointed Chief of Police to succeed Edward A. Briggart, resigned.

MOLESWORTH, A. N., District Engineer of the Transcontinental Railway of Canada at North Bay, Ont., has resigned.

RASMUSSEN, EARL, Sturgis, Mich., an engineer of Allis-Chalmers Co., died Sept. 19, report says, as the result of contact with a high tension transmission line in power house, where he was erecting hydraulic turbines.

RICHARD, F. M., Brady, Tex., has been elected Mayor to fill the unexpired term of S. A. Conlev, resigned.

SCOTT, WIRT S., Columbus, O., has been appointed to succeed Herman Gamber as superintendent of the municipal light plant.

WEISKOTTEN, E. MERCER, Syracuse, N.Y., has resigned his position as assistant engineer on Syracuse Intercepting Sewer Board to accept an appointment by State Engineer Benschel on the Barge and Canal division.

WHITEHEAD, W. P., Palmetto, Fla., has been elected Mayor. W. M. Rowlett, Clerk, C. A. Howze, Treasurer, and R. L. Nettles, tax assessor.

WILDER, E. S., Hastings, Fla., has been elected Mayor.

INDUSTRIAL NEWS

Cast Iron Pipe.—Chicago: There have been no municipal lettings of importance. Quotations: 4-inch, \$26.50; 6 to 12-inch, \$24.50; 16-inch and up, \$24. Birmingham: Quotations are so far unaffected by the manifest weakness in the pig iron market, the conditions being due to the number of orders already booked. Quotations: 4 to 6-inch, \$23; 8 to 12-inch, \$22; over 12-inch, average, \$21. San Francisco: Large orders have not been in evidence recently, but the aggregate of all orders is greater than in August. Many towns are issuing bonds for water works improvements. New York: Some large orders are in sight and there is more general inquiry. Quotations: 6-inch, carloads, \$21 to \$22.

Lead.—Lead has declined in St. Louis to 4.35c, which puts the Western price down to the equivalent of that demanded in New York. This is the first time in many weeks that such has been the case, and now Western dealers are competing for New York business with the leading producer. The New York price remains at 4.50c and there is sharp competition for what little business there is in sight.

New Chemical Fire Engine.—The French government has bestowed a decoration upon a village priest for inventing a chemical fire engine which, judging from press reports, is an effective machine. The extinguisher consists, it is said, of a tank containing certain liquid gases and salts. Pressing a lever mixes the contents and produces great pressure which forces the liquid through a nozzle to a great height. The engine will be placed on the market by a company. The French government is stated to have ordered several for use in public buildings. Elaborate trials were conducted in the presence of the municipal authorities, chiefs of the fire brigade and thousands of spectators at Bordeaux. A stack of packing cases and brushwood 50 feet high was erected and the pile soaked with petrol, alcohol, tar and oil. This pile was set alight and the flames reach a height of 90 feet. The chief of the fire brigade remarked that it would be impossible for the ordinary engines to put this fire out, but the priest's method was again successful. In spite of the fact that there was a high wind the flames were extinguished in less than five minutes. In Paris an ordinary fire engine played on one stack of blazing material while the abbé's engine played on another of exactly similar construction. The new engine was not only very much quicker in putting out the fire but when attempts were made to relight the wood on which it had been playing they failed, whereas a few minutes after the work of the ordinary engine was apparently finished the flames broke out again in the other stack.

Steam Roller.—The Buffalo Steam Roller Company, now located at Carolina and Efner streets, Buffalo, in premises leased from the Buffalo Pitts Company, will move its plant to Springfield, Ohio, about December 1, a plant in that city having been recently acquired. The headquarters of the company will remain in Buffalo, and it is possible a Buffalo plant may be re-established later. H. S. Cunningham is president of the company.

Sewage Purification by Electricity.—Mayor Thum, Pasadena, Cal., was given carte blanche by the Council last week to enter into negotiations with J. T. Harris, of Santa Monica, for the erection of an experimental plant at the city farm for the reduction of sewage by electricity. The city will have an option on the plant, with the privilege of purchasing it within 40 days after its installation. The tentative contract between the city and Mr. Harris, submitted to the Council by the Mayor, provides for the construction, at the inventor's expense, of one chute, or unit, with a reducing capacity of approximately 500,000 gallons daily. It is to be fully equipped with electrical and magnetic appliances and be operated 30 days free of expense, the city agreeing to install pipe connections with the sewer system and to furnish free electricity. After that period of time the city reserves the right to purchase or reject the plant within 10 days. For an option on the plant after it has been in operation for 30 days the city agrees to pay a sum not exceeding \$2,500, and for a further option upon the right to use the plant an additional \$2,500 is agreed on. The entire cost of the experimental plant is not to exceed \$5,000.

Fire Hydrant.—Joseph U. Wells, of the Lamson Patented Specialties Co., was before the Water Board, Lowell, Mass., to explain the use of a new double hydrant which allows for the opening of a second water gate without completely shutting off the water, so that both can be used at once. This hydrant has been examined by Chief Hosmer and other authorities and they have pronounced it the "best ever" in the hydrant line. The price of the hydrant is \$30, with a cost of \$5 extra for installing.

Scales.—The Standard Scale and Supply Company, Pittsburg, Pa., recently shipped 35 scales, mostly 120-ton railroad track scales, for the Bureau of Water Supply, Gas and Electricity, Brooklyn, N. Y. The Standard company has recently placed on the market a special new pattern portable suspension scale with steel plate platforms. This scale eliminates the necessity of cutting the floor where the scale is placed and it is only necessary to use an incline of two inches at each end to run on the platform. This type of scale is particularly desirable for users where the floors are damp and wet, as there is no opening to allow the water to run through to the floor below.

Cement Shows.—The Cement Products Exhibition Company, 72 West Adams street, Chicago, Ill., announces that the first allotment of space for the 1912 shows will be made October 6, and that applications for space, to be considered in this allotment must be received at their office by October 3.

Contractors Machinery Wanted.—Having secured the earth embankment and masonry section of the Fort Worth dam and reservoir, the Underground Construction Company, St. Louis, Mo., are in the market for machinery, tools, etc. Will begin work at once. Present headquarters of the company, Siebold Hotel, Fort Worth, Tex.

Clay Products Plant.—The Webster City Brick & Tile Co., Webster City, Ia., with its plant and entire property was recently transferred to B. H. Ward, a capitalist, who owns large sewer pipe and tile plants at Albert Lea, Glenville and other points, and has an extensive experience in this industry. It is the intention of the new management to capitalize the organization at not less than \$300,000. The plant will be enlarged at once, and extra machinery will be added for the manufacturing of all sizes of sewer pipe, fancy brick, and eventually vitrified paving material, and it is the purpose to make this one of the largest and best equipped factories in Iowa. Mr. Ward will take possession at once and will begin making preparations for carrying on the business.

New Fire Alarm Indicator.—A new alarm indicator for fire stations is being introduced in Newark, N. J. It has three panes of glass, behind which incandescent lamps can be so arranged as to show the signaling box by numeral or special signs. The apparatus can be worked by hand or automatically by the usual Morse alarm signals. To save the time necessary for finding on a chart the spot from which the alarm was sent, it is proposed to use a translucent map to be illuminated by the alarm and showing all boxes of the fire department area by numbered disks. The call will also show a red light behind the disk for the signaling box and another for the station, so that the best route to the fire would be seen at a glance.

New Corporations

The Jourdanton Waterworks Co., Jourdanton, Tex.; capital, \$15,000. Directors: H. Zanderson, T. L. Richardson, B. B. Dougherty.

Lenni Heights Water Company, Middletown Township, Delaware County, Pa.; capital, \$5,000.

The Auto Chemical Fire Engine Co., Camden, N. J.; manufacturing automobile chemical engines, etc.; capital, \$1,000,000. Incorporators: F. R. Hansell, I. C. Clow and John A. MacPeak, all of 419 Market street, Camden, N. J.

Ornamental Lighting Pole Co., Manhattan; manufacturing poles, supplies, etc.; capital \$10,000. Incorporators: Harvey S. Tonks, 17 Battery place; Ernest Ziegler, 135 Broadway, New York City, and Wm. J. Nunes, 82 Clerk street, Jersey City, N. J.

A. C. Winfield Pump & Machine Co., Brooklyn; manufacturing and sell pumps, hoist machines, etc.; capital, \$50,000. Incorporators: Abram C. Winfield and Elizabeth Winfield, 141 Stratford road; Jacob Breitenbecker, 417 Beverly road, all of Brooklyn.

The Pee Dee Bridge Co., Florence, S. C.; capital, \$75,000. W. R. Bonsal, president; H. Andrews, vice-president; J. S. Mitchell, secretary; S. O. Bauersfeld, treasurer.

The Hazard Bridge Co., Hazard, Ky.; capital, \$15,000. Incorporators: Jesse Morgan, T. S. Ward and J. B. Hoge.

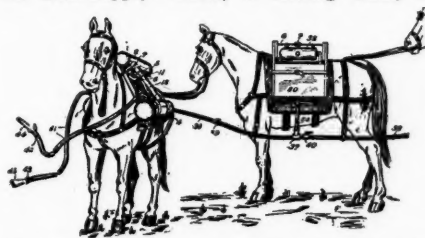
The Louisiana Sand, Gravel and Construction Co., Monroe, La.; capital, \$100,000. J. E. Morgan, president; E. E. Eby, secretary.

The Oklahoma Engineering Co., Oklahoma, Okla.; capital, \$25,000. Directors: Fred W. Keeney, Anadarko; George W. Fry and T. Myron Pyle, of Oklahoma City.

The Gordon Jones Construction Co., San Antonio, Tex.; capital, \$10,000. Incorporators: P. M. Gordon, H. N. Jones and B. A. Labarre.

PATENT CLAIMS

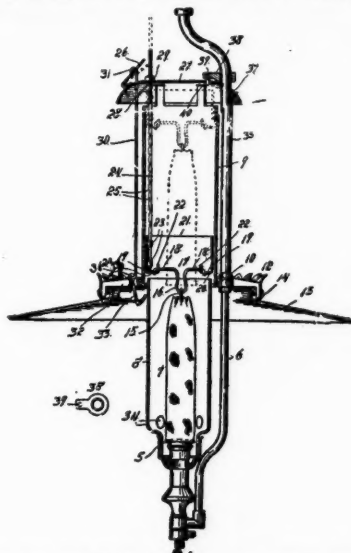
1,003,853. APPARATUS FOR EXTINGUISHING FIRES. Daniel W. Adams, Glendale Springs, N. C. Serial No. 593,924. An automatic fire extinguishing apparatus comprising a liquid-supply reservoir, an acid-supply vessel, a mixing tank, a



conduit connecting said reservoir and said tank, a measuring chamber intermediate said vessel and said tank, and means actuated by fluid-pressure within said tank operating to automatically govern the flow of liquid from said vessel and from said reservoir into said tank.

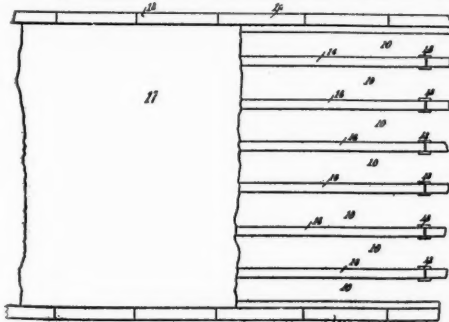
1,003,615. STREET GAS-LAMP. Samuel F. Kraus, Denver, Colo., assignor to The Kraus Light Company, Denver, Colo., a Corporation of Colorado. Serial No. 583,130.

The combination with a lamp having a burner, a mantle and a hood normally located above the mantle, of means for raising the mantle upwardly into the hood, comprising a rod, a guide sleeve connected



with the rod and forming a support for the mantle, the sleeve being located within the hood and movable vertically therein, the rod protruding through the top of the hood in which it slides freely, and means adapted to engage the rod for supporting the sleeve and mantle in the raised position when properly adjusted, substantially as described.

1,003,840. PAVEMENT. John O. Wilhelm, Portland, Ore. Serial No. 552,684. A paving comprising a foundation layer, a plurality of piers spaced longitudinally and transversely of the paving with their upper faces in the same plane and each provided with a channel extending longitudinally of the paving, I-beams disposed upon the

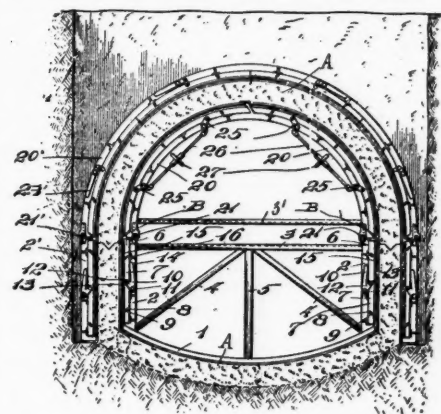


piers in parallel, longitudinally of the paving and having their lower sides disposed in said channels respectively, the heights of the beams diminishing from the center of the paving in both directions transversely thereof, a metal sheet supported

upon the beams and arched transversely of the paving and a coat of asphalt covering the metal plate.

1,003,847. MOLD FOR BUILDING CONCRETE SEWERS AND TUNNELS. Charles H. Witthoeft, St. Louis, Mo. Serial No. 500,549.

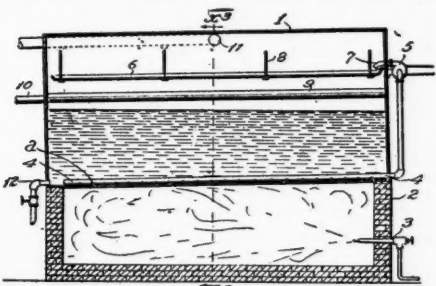
In a mold for making concrete tunnels, the combination with mold plates, of lower stationary vertical mold plate bracing sections, track rails supported by said lower stationary mold plate bracing sections, and an arched mold section comprising an inverted U-shape carrier provided with travelers at its ends, said travelers being rideable upon said track rails, backing bar sections adjustably fitted to said carrier



and movable toward and away from the adjacent mold plates employed in forming the arch of the tunnel, bracing bars adjustably fitted to said carrier by which said backing bars are held in fixed positions during a molding operation, levers pivoted to said carrier and having connection with said backing bars, operating rods connected to said levers, and turnbuckles connecting said operating rods whereby the levers may be operated to impart movement to the backing bars transversely of the carrier.

1,003,040. APPARATUS FOR AND METHOD OF TREATING ASPHALT SOLUTIONS FOR THE PRODUCTION OF ASPHALT CEMENT AND THE RECOVERY OF THE LIGHTER PRODUCTS. Franklin H. Dunham, Los Angeles, Cal. Serial No. 416,611.

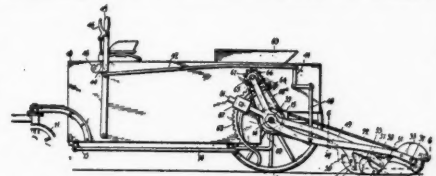
The method of obtaining asphalt from asphaltic oils which consists in heating the oil to a temperature between 400 and 600



degrees Fahrenheit within a shell, removing oil from the lower portion of the shell to the upper portion of the shell and there subjecting the same to the temperature of the shell above the surface of the lower charge of oil, and removing the heavier vapors and condensate from the shell below the level of the top of the upper charge.

1,003,937. STREET-SWEEPER. Nellie M. Miller, Washington, D. C. Serial No. 617,103.

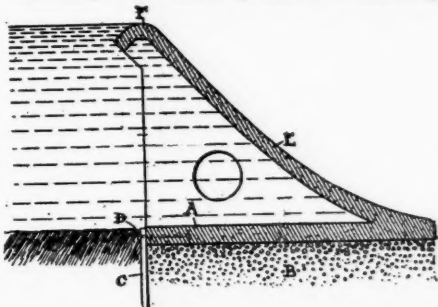
In a street sweeper, the combination with a wheeled vehicle, of a rotary brush, a pan open at the back and arranged in advance of the brush to receive sweepings therefrom, means for elevating the pan to discharge the contents thereof, a hinged



section arranged at the rear edge of the bottom of the pan and forming an extension thereof when the pan is in its lowered position, and means for automatically tilting the hinged section upwardly to form a guard when the pan is raised.

1,002,817. DAM. Rufus C. Beardsley, Cleveland, Ohio. Serial No. 545,836.

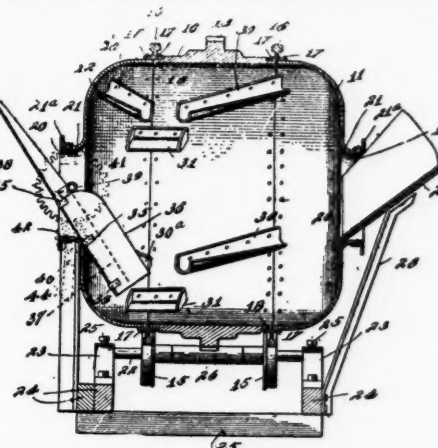
In a dam, the combination with a substantially horizontal pressure sustaining



member, of a sloping member, said members being joined together and diverging in an up-stream direction.

1,003,088. CONCRETE-MIXER. Horace M. Capron, Winnetka, Ill. Serial No. 535,402.

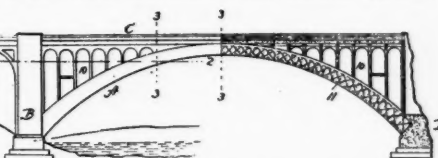
In apparatus of the character described, the combination with bearing rollers, of a drum comprising a central annular mem-



ber and end members, and circular tracks consisting of rails of T section which revolvably support the drum on the rollers and to the flanges of which are secured the abutting edges of the annular member and the end members.

1,002,944. CONCRETE ARCH-BRIDGE. Claude A. P. Turner, Minneapolis, Minn. Serial No. 459,955.

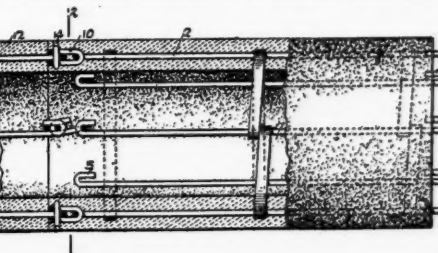
In a concrete arch construction, the combination of reinforced concrete, spaced, arch-form ribs, a reinforced floor slab integral with the ribs at the central portion



of the span, and a lateral system of trusses composed of members of reinforced concrete extending between the ribs at right angles and obliquely thereto, said system being situated intermediate said integral central portion of the structure and the abutments.

1,003,309. COUPLING FOR REINFORCED-CONCRETE PIPES. Charles Harrison Wilson, Red Oak, Iowa. Serial No. 597,329.

In a coupling for reinforced pipes, reinforcing rods having hooked ends spaced apart in alignment, a U-shaped coupling



member engaging a hook on one rod, hooks disposed parallel on said coupling member straddling the hook on the end of the other rod, and a pin passing through said last-mentioned hooks.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards.

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO.
STREET IMPROVEMENTS				
Illinois.....	Catlin.....	Sept. 29.....	Constr. vitrified brick pavement, cost \$35,000.....	Dr. O. Allison, Chm. Bd. Loc. Imp.
Ohio.....	Cincinnati.....	Sept. 29, noon.....	Improvement several streets.....	Fred Dreihls, Clerk.
West Virginia.....	Grafton.....	Sept. 29.....	Paving with brick portions of W. Main St. and 2 other streets.....	Street Committee.
Indiana.....	Greencastle.....	Sept. 30.....	Improving 2,005 ft. macadam road in Putnam County.....	D. V. Moffett, County Auditor.
Ohio.....	Ashland.....	Sept. 30, 10 a.m.....	Grading and macadamizing 1.60 miles of road in Sullivan towns.....	County Commissioners.
Ohio.....	Columbus.....	Sept. 30, 10 a.m.....	Grading and macadamizing 1.04 miles of road.....	County Commissioners.
Texas.....	Galveston.....	Oct. 1, 11 a.m.....	Paving with vitrified brick about 4,900 sq. yds.....	John M. Murch, County Auditor.
Indiana.....	Huron.....	Oct. 1.....	Constructing concrete sidewalk.....	J. I. Tolliver, Town Clerk.
California.....	Fresno.....	Oct. 2, noon.....	Paving part of M. Street.....	Board Supervisors.
North Dakota.....	Ellendale.....	Oct. 2.....	Grading approach to bridge.....	V. E. Haskins, County Auditor.
South Dakota.....	Mitchell.....	Oct. 2, 8 p.m.....	Constructing cement sidewalks.....	N. H. Jensen, City Auditor.
South Dakota.....	Yankton.....	Oct. 2.....	Grading street.....	J. W. Summers, City Auditor.
New Jersey.....	Elizabeth.....	Oct. 2, 8:30 p.m.....	Constr. 1,340 lin. ft. new curb, 9 lin. ft. new corners 1,121 cu. yds. excavation to be used for filling where necessary.....	N. K. Thompson, St. Comr.
Colorado.....	Lamar.....	Oct. 2, noon.....	Grading and surfacing part of State Primary road No. 6.....	H. P. Syp, County Clerk.
Ohio.....	Dayton.....	Oct. 2, noon.....	Paving and laying sidewalks in several streets.....	J. C. Ely, Dir. Pub. Service.
Indiana.....	Huntingburg.....	Oct. 2.....	Constructing concrete sidewalks in various streets.....	L. J. Bamberger, City Clerk.
New York.....	Yonkers.....	Oct. 2, 3:30 p.m.....	Regulating, grading and otherwise improving Marlborough Road, Palmetto St. Armstrong Ave. and 2 other streets.....	Board Contract & Supply.
New York.....	Albany.....	Oct. 2, 3 p.m.....	Improving Morris St. by grading, setting granite curb paving carriageway with repressed vit. shale paving blocks on concrete foundation.....	Board Contract & Supply.
Mississippi.....	Jackson.....	Oct. 3.....	Paving W. Capitol St. with bitulithic wood block, sheet asphalt, granitoid or other bituminous pavement.....	John McLeod, Street Commissioner.
Indiana.....	Winamac.....	Oct. 3.....	Constructing 3 gravel roads.....	W. E. Murchenburgh, Co. Aud.
Georgia.....	Cedartown.....	Oct. 3.....	Constr. 5,000 ft. cement curb and gutter.....	H. M. Van Devander, City Engr.
Washington.....	Spokane.....	Oct. 3, 2 p.m.....	Improving by grading, curbing, parking and sidewalk on Lacrosse Ave.....	C. A. Fleming, City Clerk.
Indiana.....	Vincennes.....	Oct. 3, 2 p.m.....	Constructing sidewalk on Busseron Street.....	John T. Scott, County Auditor.
Florida.....	Palatka.....	Oct. 3.....	Paving 15,000 sq. yds. with brick and 4.8 miles with shell or gravel setting 18,000 ft. curbing.....	City Council.
Alabama.....	Oneonta.....	Oct. 3.....	Grad., drain, and surfacing with chert 1 mile State Aid Road.....	Board Commissioners.
Indiana.....	Logansport.....	Oct. 3.....	Constructing 2 gravel and 1 macadam road.....	J. E. Wallace, County Auditor.
Indiana.....	Bedford.....	Oct. 3.....	Constructing 13 gravel or macadam roads.....	E. W. Edwards, County Auditor.
Indiana.....	Lawrenceburg.....	Oct. 3, noon.....	Improving 2 highways.....	W. S. Fagaly, County Auditor.
Ohio.....	Bryan.....	Oct. 3, 10 a.m.....	Grading and macadam. 1.52 miles of road in Pulaski township.....	County Commissioners.
Alabama.....	Anniston.....	Oct. 4, noon.....	Grading, draining and surfacing with chert or macadam 3 miles of State Aid Road.....	W. S. Keller, State Hwy. Engr.
W. Virginia.....	Huntington.....	Oct. 5, 1 p.m.....	Paving several streets with No. 1 vitrified brick.....	John Coon, Commissioner Streets.
Ohio.....	Cincinnati.....	Oct. 6, noon.....	Improving Burnt School House road.....	Stanley Struble, Pres. Bd. Co. Comrs.
Ohio.....	Ravenna.....	Oct. 6, 9 a.m.....	Grading and paving with brick 1.84 miles of road.....	County Commissioners.
New Jersey.....	Trenton.....	Oct. 7, noon.....	Grading and improving grounds at Montclair State Normal School and laying walks on same.....	State Board Education.
Ohio.....	Cleveland.....	Oct. 7, 11 a.m.....	Grading and improving road.....	J. F. Goldenbogen, Clk. Co. Coms.
Ohio.....	Chagrin Falls.....	Oct. 7.....	Grad., drain, and improv. Fenkel & Solon Road in Chagrin Falls.....	County Commissioners.
North Carolina.....	Raleigh.....	Oct. 9, 11 a.m.....	Constructing concrete walks at National Cemetery.....	H. L. Pettus, Major & Q. M., U. S. A.
Pennsylvania.....	Wilkes-Barre.....	Oct. 9, noon.....	Grading, curbing and paving N. Main St. with vitrified brick, sheet asphalt, belgian block.....	Washington, D. C.
Indiana.....	Bluffton.....	Oct. 10, 10 a.m.....	Constr. gravel road on County line between Allen and Wells Counties.....	City Clerk.
Ohio.....	Pleasant Ridge.....	Oct. 18, noon.....	Improving Carthage Road.....	Board of Commissioners.
Ohio.....	Cleveland.....	Oct. 25, 11 a.m.....	Grading, draining and improving South Woodland Road No. 2.....	H. B. Hayden, Village Clerk.
Brazil.....	Rio Grande.....	Nov. 12.....	Constructing paving, drainage system and water works.....	John F. Goldenbogen, Clerk.
SEWERAGE				
Georgia.....	Summerville.....	Sept. 30, noon.....	Constructing 10,000 lin. ft. of clay pipe sewers, 6 to 24-in.....	A. Cuthbert, Intendant.
Ohio.....	Dayton.....	Sept. 30, noon.....	Constr. sewers in 42 streets and alleys.....	J. C. Ely, Dir. Pub. Service.
Indiana.....	Evansville.....	Sept. 30.....	Constructing sewer.....	Board Public Works.
Illinois.....	Bushnell.....	Sept. 30, 7:30 p.m.....	Constructing 5 blocks of sewers.....	C. L. Harrah, City Clerk.
New Jersey.....	Elizabeth.....	Oct. 2, 8:30 p.m.....	Constr. sewer in Amity St. also 230 lin. ft. 10-in. pipe sewer, 140 lin. ft. 6-in. pipe to curb, 2 manholes plastered on outside with 1/2 cement mortar.....	N. K. Thompson, Street Comr.
Iowa.....	Mason City.....	Oct. 2.....	Constructing sewage disposal plant.....	J. H. McEwen, City Clerk.
Ohio.....	Dayton.....	Oct. 2.....	Constr. sanitary sewers in Dist. No. 3.....	J. C. Ely, Dir. Pub. Service.
New York.....	Yonkers.....	Oct. 2, 3:30 p.m.....	Constructing several sewers with appurtenances.....	Board Contract & Supply.
Oklahoma.....	Muskogee.....	Oct. 3, 10 a.m.....	Construct. sanitary sewers of brick and clay pipe.....	Chas. Wheeler, Jr., City Clerk.
Ohio.....	Cincinnati.....	Oct. 3, noon.....	Constructing sewers.....	Director Public Service.
Washington.....	Spokane.....	Oct. 3, 2 p.m.....	Improving First Ward sub-trunk sewer.....	C. A. Fleming, City Clerk.
New York.....	Newburgh.....	Oct. 3.....	Constructing 18-in. sewer.....	City Council.
Pennsylvania.....	McKeesport.....	Oct. 3, 8 p.m.....	Constructing 4 sewer inlets.....	C. E. Soles, City Comptroller.
South Dakota.....	Madison.....	Oct. 5.....	Constructing sewage disposal plant.....	Wm. Rae, City Auditor.
Texas.....	Dallas.....	Oct. 6.....	Laying storm sewers on 3 streets with from 15-in. vitrified pipe to 80-in. plain concrete pipe.....	J. B. Winslett, City Secretary.
Virginia.....	Colonial Beach.....	Oct. 11, noon.....	Constr. 3 miles 8 to 15-in. sewers, 3 miles 4 to 8-in. water mains, sewage disposal plant, sewage lifts, power house, water tower and artesian well.....	H. W. B. Williams, Mayor.
Illinois.....	Edwardsville.....	Mar. 1.....	Constr. about 3,000 ft. of 8 to 18-in. pipe sewers.....	C. L. Pitchford,
WATER SUPPLY				
Ohio.....	Jefferson.....	Sept. 29.....	Enlarging dam.....	J. J. Neave, Clerk Trustees Pub. Afrs.
Ohio.....	Toledo.....	Sept. 29, noon.....	Constructing reservoir 15,000,000 gal. capacity.....	J. R. Cowell, Dir. Pub. Service.
Nebraska.....	Alliance.....	Sept. 30, 3 p.m.....	Constructing building, installing machinery for Water and Light Department.....	J. D. Emerick, City Clerk.
South Dakota.....	Newell.....	Oct. 2, 2 p.m.....	Constr. 1,665 lin. ft. 30-in. and 2,227 lin. ft. 42-in. wood stave pipe.....	F. H. Newell, Dir. Wash., D. C.
Nebraska.....	Upland.....	Oct. 2, 8 p.m.....	Constructing water works.....	T. R. Bucknell, Village Clerk.
Texas.....	Nocona.....	Oct. 2, 8 p.m.....	Furnishing rotary pump, deep well pump, gasoline engine steel tank and tower, 120 tons c. i. pipe and specials.....	Walter Hodges, Mayor.
Wisconsin.....	Platteville.....	Oct. 2.....	Furnishing deep well plunger pump, 500 gal. capacity.....	J. E. Kennedy, Secy. Water Com.
Iowa.....	Pierson.....	Oct. 3, 8 p.m.....	Constr. 1,150 ft. 6-in. water mains, sinking twenty 2-in. wells.....	Town Council.
California.....	Los Angeles.....	Oct. 3, 2 p.m.....	Furnishing water meters to Department of Public Service.....	James P. Vrooman, Secretary.
Canada.....	Montreal, Que.....	Oct. 3 noon.....	Constr. prefilters, filtered water reservoir and appurtenances.....	Board Commissioners.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO.
WATER SUPPLY (Continued)				
New York	New York	Oct. 4, 2 p.m.	Furnishing material and labor for alterations, repairs and improvements at various pumping stations in boro. of B'klyn...	Department Water Supply, 13 Park Row, Manhattan.
New York	New York	Oct. 4, 2 p.m.	Constr. improvements at pumping stations.	H. S. Thompson, Comr. Water Sup.
Michigan	Muskegon	Oct. 5, 2 p.m.	Constr. 7,000 ft. 48-in. intake pipe and water mains for distribution system.	B. H. Tellman, City Recorder.
Arizona	Yuma	Oct. 12, 2 p.m.	Constructing 9 miles of canal in Yuma Indian Reservation.	U. S. Reclamation Service.
Ontario, Can.	Windsor	Oct. 12	Constr. 60-in. steel intake pipe 500 ft. long.	W. A. Hanrahan, Secy. Water Com.
Michigan	Muskogon	Oct. 16, 8 p.m.	Constructing 48" steel or cast iron intake pipe.	Benj. H. Tellman, City Recorder.
Mississippi	Lexington	Oct. 18	Constr. water works including artesian wells, reservoir pumping station and 6 miles of main.	Mayor and Board Aldermen, W. G. Kirkpatrick, Jackson, Miss.
Ohio	Cleveland Hgts.	Oct. 31, noon	Constr. 6-in. water main in Edendale Street.	H. H. Canfield, Village Clerk.
India	Howrah	Dec. 1, 4 p.m.	Furn. 2 triple expansion engines coupled to centrifugal pumps, capacity 8,000 gals. per minute.	C. F. Payne, Chm. Municipal Comrs.
Australia	Queensl'd, Brisb.	Jan. 30, noon	Furnishing a 6 million gallon pumping plant of 2 or 3 units.	G. E. Johnston, Secy. Board, Albert St., Brisbane, Queensland.
BRIDGES				
Illinois	Lockport	Sept. 30, 10 a.m.	Constructing several bridges.	Canal Commissioners.
Texas	Galveston	Oct. 1, 11 a.m.	Paving with vitrified brick or block portion of causeway known as arch bridge.	John M. Murch, County Auditor.
North Carolina	Hendersonville	Oct. 2	Constructing 2 steel bridges.	County Commissioners.
Minnesota	Carlton	Oct. 2, 10 a.m.	Constructing 2 iron and concrete bridges.	A. R. Norman, County Auditor.
Georgia	Cartersville	Oct. 4	Constr. 40 ft. reinforced concrete bridge.	G. A. Veach, Chm. County Com.
Louisiana	Natchitoches	Oct. 4	Constructing bridge across Cane River.	Police Jury Committee.
Louisiana	Bermuda	Oct. 4	Constructing steel highway bridge.	Police Jury.
Pennsylvania	Norristown	Oct. 4, 11 a.m.	Constructing double arch stone bridge.	J. M. Jacobs, County Comptroller.
Florida	Jacksonville	Oct. 4, 10 a.m.	Constructing bridge over Nassau River.	C. W. Ellis, Chm. County Com.
West Virginia	Huntington	Oct. 6, noon	Constructing superstructure of bridge.	County Clerk.
Ohio	Cleveland	Oct. 7, 11 a.m.	Constructing bridge work.	J. F. Goldenbogen, County Clerk.
Indiana	Indianapolis	Oct. 7, 10 a.m.	Constructing bridge and culvert.	Albert Sahn, County Auditor.
Utah	Theodore	Oct. 10, 2 p.m.	Erecting steel highway bridge.	Comr. Indian Affrs., Wash., D. C.
Pennsylvania	Lancaster	Oct. 17, noon	Constructing 3-span plate girder bridge.	J. H. Rathfon, City Compt.
Texas	Houston	Nov. 20, noon	Constr. 2 reinforced concrete bridges over White Oak Bayou.	Dan C. Smith, Jr., City Compt.
LIGHTING AND POWER				
Ohio	Akron	Sept. 30, noon	Supplying electric, gas and gasoline lighting.	J. W. Gottier, Dir. Pub. Service.
Oregon	Ft. Stevens	Oct. 3	Installation of hot water heating and constr. electric lighting for Barracks No. 20 and 22.	Post Quartermaster, Ft. Stevens.
New York	Oneida	Oct. 3	Lighting streets and public places for a period of one, three and five years.	Albert Morris, Chm. Bd. Pub. Wks.
Dist. of Col.	Washington	Oct. 9, 10:30 a.m.	Furn. machinery for hydro-electric station at Gatun.	Major F. C. Boggs, Purchasing Agt.
Montana	Butte	Oct. 12	Furnishing lighting fixtures for court house.	County Commissioners.
South Carolina	Charleston	Oct. 18, noon	Lighting streets for term of 1, 2 or 4 years; electricity gas or other means.	Ion Simons, City Electrician.
Massachusetts	Boston	Oct. 18, noon	Furnishing 11,000 gas mantle lamps.	Purchasing Agent, Mullen.
California	Los Angeles	Oct. 20	Equip. San Francisco Power house, capacity 30,000 h.p.	E. F. Scattergood, Chief Engineer.
Australia	Brisbane	Jan. 30, noon	Designs, supply and erection at Mount Crosby Pumping Station of alternatively one, two and three complete units consisting of power generating pumps and plants, etc.	Geo. Johnston, Albert St., S.&W.Bd
MISCELLANEOUS				
California	Los Angeles	Oct. 1	Furnishing machinery for electrical equipment, cost \$350,000.	Public Service Com.
New Jersey	Jersey City	Oct. 2, 2 p.m.	Removing garbage, 2 propositions; 1, removal of ashes, garbage, and kitchen refuse without separation; 2, removing same as above, separately.	E. B. See, Clerk Board Comrs.
Ohio	Cleveland	Oct. 2, noon	Furnishing 65 ft. aerial ladder truck; also 2 second size steam fire engines.	F. G. Hogen, Dir. Pub. Safety.
California	Emeryville	Oct. 2, 8 p.m.	Furn. motor driven comb. fire pumping engine and hose wagon.	Board Trustees.
Washington	Everett	Oct. 3	Furnishing gasoline combination engine and hose cart.	Fire & Police Commission.
Ohio	Cleveland	Oct. 9, noon	Furnishing asphalt cement, asphalt tandem steam roller and portable asphalt mixing plant.	A. B. Lea, Dir. Pub. Service.

STREET IMPROVEMENTS

Napa, Cal.—Board of Supervisors has rejected bids for construction of proposed road between Blackman Grove and St. Helena Sanitarium, and bids will be re-advertised.

Sacramento, Cal.—State Highway Commission has voted to sell \$400,000 worth of \$18,000,000 bond issue voted by people for building of State highway. State Treasurer Roberts will immediately offer the bonds for sale.

San Francisco, Cal.—Resolution providing for construction of Stockton street tunnel has been approved by Street Committee.

Willows, Cal.—Voters have authorized \$160,000 bond issue for building and improvement of roads.

Bridgeport, Conn.—Council has authorized issuance of \$100,000 in bonds for permanent paving.

Washington, D. C.—Grading of Beach driveway above Military rd. at Rock Creek park has been planned.

Fernandina, Fla.—Citizens have voted in favor of issuing bonds for purpose of constructing good roads.

Palmetto, Fla.—Citizens have voted to issue \$15,000 in bonds for extension of street, water and sewage systems of city.

St. Augustine, Fla.—Washington County will vote on Dec. 12 on issuance of \$300,000 in bonds for complete system of good roads.

Coeur D'Alene, Ida.—City Council has decided to call election for voting on bond issue for street improvements.

Chicago, Ill.—Plans have been made for extensive street paving.

E. St. Louis, Ill.—Council has passed ordinance authorizing placing of granitoid 12-

ft. sidewalk on Broadway from 5th st. to 10th st., at cost of \$22,146.

Moline, Ill.—Petition is being circulated for paving of Twenty-third ave. from 15th to 27th sts.

Moline, Ill.—Paving of street which forms boundary line between Moline and E. Moline is being considered.

Evansville, Ind.—Resolutions for improvement of Garvin st., from Jefferson av. to Madison av., and Seventh st., from Mulberry st. to Gum st., have been passed by Board of Public Works. Clerk Simon Bartholome was ordered to advertise for bids.

Evansville, Ind.—Sidewalk improvement resolutions were passed to improve north side of John st., south side of Morgan, both sides of Mary, south side of Bond and north side of Monroe.

Indianapolis, Ind.—Board of works today confirmed resolution for paving Pennsylvania st. from 27th to 28th st.

Indianapolis, Ind.—Ordinance has been passed for improving New Jersey st., from 38th to 40th, with cement walks and curb; Bradbury, from Shelby to Draper, with curb, walks and graded lawns.

Clinton, Ia.—Resolution is being considered for construction of permanent concrete sidewalks on numerous streets.

Des Moines, Ia.—City Council has authorized construction of sidewalks, paving and curbing of various streets.

Leavenworth, Kan.—Ordinance has been passed providing for construction of granitoid sidewalks in various streets.

Lexington, Ky.—Ordinance is being considered providing for widening of Short st. from Limestone to Walnut.

Louisville, Ky.—Board of Public Works will construct following roads: Bardstown rd., 200 ft. east of Shady la., to city boundary line; Hite ave., from Frankfort ave. to Fayette ave.; Mossrose ave., from Rose-

wood ave. to Windsor pl.; Bellewood ave., from Rosewood ave. to Windsor pl.

Lowell, Mass.—Resolution has been adopted to borrow \$3,750 for extending Stromquist ave. to Lundberg st.

Highland Park, Mich.—Council has passed resolution providing for repaving of Cottage Grove ave. from Woodward to John R., and from John R. to Oakland ave.

Butte, Mont.—Resolution has been adopted for grading of Henry st., from Broadway to Park.

Libby, Mont.—Election will be held Oct. 28 for voting on bonding county for \$125,000 for constructing roads and bridges.

Fulton, Mo.—Bonds value \$100,000 has been voted for construction of permanent roads.

Collingswood, N. J.—Citizens have voted in favor of \$50,000 bond issue for street improvements.

Irrington, N. J.—Paving of Washington ave., from Springfield to Madison aves., is being discussed.

Keyport, N. J.—Ordinance has been passed requiring laying of cement or flag sidewalks on Broadway from Mott st. to northern terminal of Broadway.

Millville, N. J.—Ordinance has been passed providing for paving of High st. from Smith st. to Depot st., East Main st. from Maurice River Bridge to 2d st., and Broad st. from 2d st. to Buck st., with vitrified brick on 4-in. concrete foundation.

Millville, N. J.—Resolution has been adopted by County Board of Freeholders for making Malaga rd. an improved State road from Landis ave. to Millville.

Albany, N. Y.—Improvement of eastern end of Beaver park and construction of new boulevard to connect southern section with other parts of city is being discussed.

Schenectady, N. Y.—Resolution has been passed by Board of Trustees authorizing

clerk to advertise for bids for laying sidewalks on Vley rd. and Reynolds st.

Cincinnati, O.—Plans have been made for improvement of Cleinview ave., from Humboldt ave. to point 140 ft. north.

Cincinnati, O.—American Asphalt & Rubber Co. was declared lowest and best bidder for supplying 100 tons of asphalt to street repair department by Service Director Sundmaker. Bid, \$20.50 a ton.

Cleveland, O.—Two routes for proposed \$500,000 Edgewater boulevard extension are being considered by park engineers. Opinion was expressed at park headquarters that approach to Edgewater park should be given architectural treatment, as it would be difficult to make trees and shrubbery grow at this point.

Richmond, O.—New First National Bank of Columbus has purchased \$25,000 street improvement bonds.

Youngstown, O.—Ordinances have been passed providing for grading of Clinton st. and Lawrence st., also for paving of South ave.

Harrisburg, Pa.—Ordinances have been approved for various street improvements.

Hazleton, Pa.—Building of new county road between Wilkes-Barre, via White Haven and Freeland, to this city, has been confirmed by Court. Surveys of road have been made and commissioners will advertise for bids. Construction of road will cost more than \$200,000.

Middletown, Pa.—Ordinance has been passed providing for grading of Catharine st., from State to Susquehanna, and work will be started as soon as possible.

Pittsburgh, Pa.—Council has authorized extension and improvement of Corliss st., from W. Carson st., connecting by tunnel under Panhandle Railroad with Chartiers ave. in Sheraden; estimated cost, \$150,000.

Sharon, Pa.—Construction of sidewalks in various streets has been ordered.

Sharon, Pa.—County commissioners have received only one bid for state highway improvement for Hartford township, and same being \$2,890.30 above estimated cost, it was rejected.

Woonsocket, R. I.—Petition has been granted for having sidewalks curbed with granite and gutters paved on Pleasant st. between High and Broad sts.

Columbia, S. C.—Eight blocks on Hampton st., between Main and Harden sts., will be paved by City Council.

Gainesboro, Tenn.—Election will shortly be held for purpose of voting on \$150,000 bond issue for construction of roads.

Knoxville, Tenn.—For paving Baxter avenue to Barber Asphalt Co.

Dallas, Tex.—Petition is being made asking for concrete pavements and gutters on 8th st.

Fort Worth, Tex.—Bond issue of \$1,000,000 is being considered for improvement of county roads.

Houston, Tex.—County of Harris is considering proposition of paving road between Washington ave. and White Oak Bayou with wood or brick.

Houston, Tex.—Petition is being considered for various street improvements.

Palestine, Tex.—Construction of macadam roads have been approved of, to cost about \$150,000.

San Antonio, Tex.—City is considering laying of sidewalks on various streets, and other street improvements.

Tilden, Tex.—McMullen County has voted \$35,000 bonds for road improvements.

Tuleta, Tex.—Commissioners' Court of Bee County has ordered road superintendent to open road from Beeville through Normanna, Tuleta and Pettus to Karnes County line.

Wichita Falls, Tex.—Election will be held Oct. 12 for voting on \$150,000 bond issue for construction of good roads.

Alexandria, Va.—The following counties have voted bond issues for permanent highways as follows: Amherst, \$80,000; Charlotte, \$100,000; Culpeper, one district, \$45,000; Dinwiddie, \$102,000; Greensville, \$82,000; Lee, \$364,000; Mecklenburg, \$110,000; Norfolk, \$200,000; Orange, one district, \$50,000; Pulaski, one district, \$70,000; Rappahannock, one district, \$30,000; Russell, \$150,000; Spotsylvania, \$100,000; Tazewell, \$625,000; Warren, one district, \$30,000; Washington, \$200,000; Wise, \$135,000; Amherst, second issue, \$135,000; Russell, second issue, \$275,000; Smyth, one district, \$100,000; and Mecklenburg, second issue, \$310,000.

Richmond, Va.—Appropriation of \$8,640 has been made for opening of Monument ave., from Boulevard to Roseneath rd., including curbing and grass plots.

Richmond, Va.—Appropriation of \$4,000 has been made to grade and gravel, and \$2,000 to curb and gutter Sheppard and other streets about Benedictine College; also \$3,500 for asphalt block paving on Cherry st.

Richmond, Va.—Improvement of several main thoroughfares and repaving of part of Broad st. are being planned in anticipation of pending bond issue of \$1,000,000 for street improvements.

Spokane, Wash.—City commissioners have rejected all bids on big Ash st. paving project.

Walla Walla, Wash.—Ordinance is being considered for laying of 10,000 ft. of concrete sidewalk.

Morgantown, W. Va.—Extensive street improvements have been planned.

Wheeling, W. Va.—Bids will be advertised for paving of following rds.: National rd., from Pleasant Valley to Wheeling Park; Bethany pike, near Greggsville; Park View rd.; Wheeling and Elm Grove rd. in Ritchie district and Frazier's Run rd. in Ritchie district.

Madison, Wis.—Fourteen towns of Dane County have voted special tax levies for permanent road improvements. Total amount to be raised is \$16,417.16. County and state must contribute equal amounts.

Milwaukee, Wis.—Improvement of Kilbourn rd. is being discussed.

CONTRACTS AWARDED

Phoenix, Ariz.—To J. A. Trewbeth for constructing two sections of Territorial Highway, total length of 25 miles, between Phoenix and Prescott.

Escondido, Cal.—To H. G. Fenton, San Diego, at \$40,000 for improving one mile of oil macadam road, 70 ft. wide.

Fresno, Cal.—To California Road and Street Improvement Co. at \$15,000 for paving Kern street, between K street and the Santa Fe R. R. tracks.

Gilroy, Cal.—By City, for construction of Oldham rd. from terminus of 6th st. to Llagas Creek rd., to Casserley & Henwood, of San José, at \$5,000.

Santa Barbara, Cal.—To J. P. Donahue at \$168,410, for constructing 11.14 miles of asphalt concrete road in Golita Valley.

Lamar, Cal.—By City, for construction of stretch of road between Lamar and Morse, to P. A. Eberle, at \$2,800.

East Hartford, Conn.—For macadamizing Orchard and Larrabee streets: Other bids to Arthur H. Olmstead, Hartford, Conn., at \$1.44 per lin. ft. for each street; A. W. Byrne Co., Hartford, Conn., Larrabee St., \$1.30 per lin. ft., Orchard St., \$1.50 per lin. ft. To Thomas Kearney, Meriden, Conn., \$1.14 per lin. ft. for each street.

Oakville, Conn.—By state highway department for construction of 3110 ft. of macadam road to Mascetti and Holley of Torrington, as follows: Macadam, \$3.30 per ft.; telford, \$3.80 per ft.; brick paving, \$2.75 per sq. yd.; rubble drains, \$1 per ft.; cobble gutters, 80c. per sq. yd.; masonry retaining wall, \$4 per cu. yd.; gas pipe railing, 60c. per lin. ft.

Stamford, Conn.—For paving Elm St. to William H. Arthur, Stamford, at the following item bids: \$1.24 per sq. yd. for paving, 10 cts., 22½ cts., 38 cts., and 60 cts. per sq. yd., per quarter mile, first quarter, second quarter, third quarter and mile, for the hauling. The other bids were: White Plains, \$1.69, 9 cts., 14 cts., 18 cts., and 23 cts.; Gifford Construction Co., Jamaica, N. J., \$1.55, and 12 cts. per quarter for hauling; Frank Palmer, Stamford, \$1.35, 9 cts. per quarter for hauling; Leo Slater, Port Chester, \$1.70, 5 cts., 9 cts., 11 cts., 15 cts.; Chas. Mottola, Mt. Vernon, \$1.38, 9 cts., 17 cts., 26 cts., 34 cts.

New Castle, Ind.—By county commissioners of Henry and Hancock counties for improvement of five miles of road to McMahon & McQuary, of Greenfield, at \$18,247.

North Judson, Ind.—To Jacob Quigley & J. H. Spiker, of Knox, for construction of eight miles of stone roads in vicinity of Hanna, at \$33,000.

Fort Scott, Kan.—For paving two blocks between 6th and 8th sts., to Thogmartin & Garner, at \$1.36 per sq. yd. on brick and 33c. per lin. ft. sandstone curbing.

Louisville, Ky.—For reconstruction of Park ave. to Magnolia st., Magnolia to Hill st. and Ormsby to 6th st., to Barber Asphalt Co., at \$1.70 per sq. yd.; total cost, \$28,000.

Louisville, Ky.—For reconstruction of south side of Broadway with asphalt from Campbell st. to 4th ave., to Barber Asphalt Co., at 76.2c. per sq. yd.; total, \$23,200; also reconstruction of Chestnut st., from Campbell to Garden st., to American Standard Asphalt Co., at 99c. per sq. yd.; total, \$955.35.

Paducah, Ky.—For constructing curbs and sidewalks to O'Hagan & Lake, Aurora, Ill., \$9,270. Other bids: G. W. Kallerjohn, Paducah, \$9,383; Yavey & Johnson, Paducah, \$10,115; Henning & Vineyard, Evansville, Ind., \$9,731.

Cumberland, Md.—By City Council, for paving 4th st., between Virginia ave. and Arch st., to Bady Bros., of Frostburg, at \$1.485; also Ann st., between Park st. and Maryland ave., at \$1,835.90; for paving Laing ave., between Springdale st. and Virginia ave. and between Virginia ave. and Vine st., to Fefevre & Edwards, concrete curb \$3,739 and new stone curb

\$3,779.30. Other bids as follows: Enterprise Construction Co., Elkins, concrete curb \$3,790.35; new stone curb, \$3,850.80; Brady Bros., Frostburg, concrete \$3,912.50, new stone \$4,001.16.

Badger, Minn.—By Village Council, for construction of three blocks of cement walks, to Knut Lillegard, of Stephen, Minn., at 9½c. per sq. ft. for sidewalks and 10½c. per sq. ft. for crossings.

Cloudcroft, N. M.—By Commissioners of Otero County, for constructing 3 miles of road from Alamogordo to Cloudcroft, to V. D. Dodgen, for \$14,000.

Elizabeth, N. J.—For paving Rankin st., to James J. Potts, at \$10,378.66.

Irvington, N. J.—For paving 16th ave., from Greene st. to city line, with granite block, to Jersey Paving Co., and paving of Florence ave., with telford, from Springfield to Elmwood ave., to John Dorer.

Spotswood, N. J.—For reconstruction and graveling of Crescent ave., from New Brunswick ave. to Rhode Hall rd., to Quinlian & Quinlian, at \$1,814.

Corinth, N. Y.—For macadamizing and improving streets, to Shaughnessy Construction Co., of Albany, at \$3,800.

Rochester, N. Y.—By Board of Contract and Supply, for laying asphalt pavement on Magee ave., to Julius Friedrich Co., at \$3,025.

Mansfield, Ohio.—By County Commissioners for grading and macadamizing 3.37 miles of road in Madison and Springfield Townships, to J. W. Scott, Marion, \$23,990.

Massillon, O.—For street brick paving, to A. F. Wendling, as follows: 3,045 sq. yds. on Mill st., at \$1.09 per sq. yd.; 3,880 sq. yds. on Erie st., at \$1.08 per sq. yd., and for 2,515 sq. yds. on High st., to Urban & Schott, at \$1.10 per sq. yd.; for curbing 3,100 lin. ft. on N. Mill st. and 1,000 lin. ft. on N. Erie st., to A. F. Wendling, at 39c., and 900 lin. ft. on N. High st., to Urban & Schott, at 40c.—H. McYost, City Engr.

Harrisburg, Pa.—For construction of sections of road in Lewistown Narrows, Juanita & Mifflin counties, to J. E. Francis, Punxsutawney, and the United Ice & Coal Co., at \$120,957.48 and \$99,045.51 respectively.

Harrisburg, Pa.—For construction of two sections of National pike in Fayette and Somerset counties, to Read & Patton, Curwensville, and one section in Fayette county to Charles T. Eastburn.

Seattle, Wash.—For paving Queen Anne Boulevard Div. No. 3, to Barber Asphalt Paving Co., at \$17,179.90.

Morgantown, W. Va.—By City Council, for improvement of Bridge st. and Prairie ave., to A. M. Lucas & Co.

Wheeling, W. Va.—For paving some of Fulton st., to Louis Sax & Co., of Fulton.

Wheeling, W. Va.—For improvement of Top Mill rd., to Alex. Dixon, of Martins Ferry.

Wheeling, W. Va.—For macadamizing Triadelphia District, as follows: To Springer, Winters & Downing, Brown's Run rd.; to John Gantzer, Covenanter Church rd.; to William Robinson Robinson, Elm Grove and Boggs' Hill rd.; to Allen Rine, lower and middle Wheeling Creek rd.; to G. F. Fisher, McCutcheon's to Buchannan's Mill; to T. B. Smith, Peters' Run rd., cement; to Springer, Winters & Downing, Peters' Run rd., hard stone; to D. H. Powell, Sample rd.; to R. A. Davis, Stone Church rd.; to Springer, Winters & Downing, West Union and Roney's Point rd., first two miles; to John Gantzer, W. U. and R. P. rd., second two miles; to E. J. Ferrell, Laidley's Run to Pennsylvania state line; to Rhodes & Guy, middle Wheeling Creek rd., upper end; to Christian Shafer, Stockyard rd.; to I. N. McGlumphy, Valley Grove and middle Wheeling Creek rd.; to Robert T. White, West Union and Roney's Point rd., last three miles. For Richland District—To Harry Johnson, Boone and Hedges rd.; to Milton Shook, Brown's Run rd.; to Springer, Winters & Downing, Chapel Run and Springer's Hill rd.; to Melvin McLaughlin, Glenn's Run and Cherry Hill rd.; to George H. Landmeyer, G. C. and P. Pogue's Run to Dean's shop; to John Hercules, G. C. and P. rd. to Cherry Hill; to Peyton & Morgan, Huff's Run rd.; to George W. Peyton, Kelly's Run rd. to Dement's cemetery; to Bowman & Basil, Peter's Run rd.; to Bowman & Basil, Pogue's Run rd.; to Peyton & Morgan, Short Creek rd.; north fork; to John W. Hercules, Short Creek rd., south fork; to David Hercules, Short Creek, main stem; to I. S. DeGarmo, Waddle and Warden's Run rd., first division; to Campbell Savage, Wheeling, West Liberty and Bethany rd., first division; to W. B. North, Dean's shop to district line; to Lee Ridgley, Highland school house rd.; to Christian Shafer, Stockyard rd.; to C. H. Peyton, Wheeling, West Liberty and Bethany Pike to district line. For Liberty District—To John Herman, Dixon's Run to G. C. and P. rd.; to John Mozingo, G. C. and P. rd., Hervey's to Potomac; to F. P. Garrison, Long Run to

Potomac; to R. M. Vernillion, Valley Grove and Missile Wheeling Creek rd.; to William F. Gruse, Weldman's to G. C. and P. rd.; to Allen Mazingo, West Liberty and Hervey's; to Horace Shepherd, West Liberty and Hervey's; to Charles A. Anderson, Trussell's works to Rogers; to T. A. Delaney, Stuhlfire to West Alexander; to I. R. Mitchell, West Liberty to Girty's Point rd.; to S. E. Caldwell, West Liberty and Bethany, second division. For Ritchie District—to James A. Kemple, Wheeling and Elm Grove rd., west of school house; to E. S. Carnahan, Wheeling and Elm Grove rd., east of school house.

BIDS RECEIVED

Wilmington, Del.—For building Philadelphia turnpike with bituminous top surface 2.04 miles as follows: Allen Eng. & Constr. Co. (4 bids), Standard Oil binder and finish, 7-in. broken stone foundation, \$47,484; warrenite, \$58,558; Standard Oil binder and surface, \$58,379, and warrenite surface and crushed stone, \$70,805. Bornemann & Beiler, 5-in. concrete foundation, Headley, \$37,089, and fibertine, \$36,134; John A. Clark (4 bids), on 5-in. concrete foundation and 8-in. telford foundation, \$42,450 to \$48,650; 7-in. broken stone foundation (4 bids), \$40,530 to \$46,750; also on own specifications a bid on 8-in. water-bound macadam, \$31,450, and 2 bids, one on Bermudez, \$31,450, and Standard, \$31,000; Filbert Paving Co., for fibertine, \$37,810; Richard Hopkins (2 bids on each foundation), 5-in. concrete, \$47,342 and \$45,742; 8-in. telford foundation, \$46,769 and \$45,169, and 7-in. broken stone foundation, \$43,524 and \$41,924; Harrigan Contr. Co. (5 bids), on 7-in. broken stone foundation, Texaco or Byertile or Headley mixed, \$32,000 to \$52,841, and Amesite, on 7-in. broken stone, \$52,847; Juniata Paving Co. (3 bids), on 8-in. telford base and 4-in. of 1½-in. Birds, trap loose with Pioneer, Texaco or Tarvia, \$44,678, and water-bound macadam 8-in. to 16-ft. penetration Pioneer, Texaco or Tarvia, \$36,875, and Monroe Paving Co. (3 bids), on 5-in. concrete foundation, \$39,740 to \$41,410, and on Headley, \$40,135; 3 bids on 8-in. telford foundation, \$40,886 to \$42,555, and Headley, \$41,280; broken stone foundation (3 bids), \$33,250 to \$34,919, and Headley, \$33,644.

Taunton, Mass.—For new State highway on upper Broadway as follows: Thomas Whalen & Co., Wollaston, \$5,730; H. L. Callan, Bristol, R. I., \$5,737; Joseph McCormick, East Providence, \$5,901; H. L. Thomas, Middleboro, \$6,871; R. F. Hudson, Wilmington, \$7,120.

Duluth, Minn.—For grading and paving of Glenwood st., from 54th to 60th aves. east, constructing a combination curb and gutter, laying of sewer, gas and water connections to curb: E. A. Dahl, \$7,708.50; P. McDonnell, \$8,157.50; C. P. McLean, \$8,216.50.

East Orange, N. J.—For paving Main st. as follows: Medina block, Jersey Paving Co., \$3.62 per sq. yd.; \$98,880 total; sheet asphalt, Warner-Quinlan Asphalt Co., \$2.03, total \$60,720; bitulithic Standard Bitulithic Co., \$2.42, total \$70,080; wood block, Van Keuren & Son, \$3.10, total \$36,400; bitulithic, J. F. Shanley & Co., \$2.31, total \$67,440; wood block, Jersey Paving Corporation, \$3.28, total \$90,720; United States Wood Preserving Co., \$3.60, total \$98,400; brick, Jersey Paving Co., \$2.24, or \$65,760; granite block, Van Keuren & Son, \$3.05, or \$85,200; asphalt block, Barber Asphalt Co., \$3.03, total \$84,720.

Utica, N. Y.—For paved streets of city for period of one year and three months, three years and three months, and four years and three months, respectively, as follows: John R. Baxter, Jr., for cleaning paved streets of city and keeping them clean each day, not including Sunday: District No. 1, for great square of 10,000 sq. ft. from Oct. 1, 1911, to Dec. 31, 1912, 42c; to Dec. 31, 1914, 41c; to Dec. 31, 1915, 4c; District No. 2, to Dec. 31, 1912, 23½c; to Dec. 31, 1914, 23½c; to Dec. 31, 1915, 22½c. For District No. 2 for corresponding periods. Harry W. Roberts & Co., for cleaning paved streets of city and keeping them clean each day, not including Sunday: District No. 1, for three periods of one, three and four years, respectively, as mentioned above, 41c. per great square of 10,000 sq. ft.; District No. 2, 21c., and for District No. 3, 15c. for each of three periods designated. The City Engineer reported figures on the bids to be as follows: John R. Baxter, Jr., for first period, District No. 1, \$97.44 per day; No. 2, \$117.50; No. 3, \$86.95; total, \$301.89 per day. Second period, District No. 1, \$95.12; No. 2, \$113.75; No. 3, \$84.17; total, \$293.04; third period, District No. 1, \$95.12; No. 2, \$112.50; No. 3, \$83.25; total, \$290.87. Harry W. Roberts & Co., first period, District No. 1, \$95.12 per day; No. 2, \$105; No. 3, \$48.10; total, \$248.22 per day. The figures for sec-

ond and third periods were same as for first.

Narragansett Pier, R. I.—For grading ground adjacent to Commandant's Quarters, Naval Station, Narragansett Bay, R. L. Whipple & Co., 306 Main st., Worcester, Mass., item 1 \$1,037, 2a \$2 per yd., 2b 2c, per sq. ft., 2c \$35; Patrick H. Welch, Lee's Wharf, Newport, R. I., item \$80, \$570, \$300, \$10.

SEWERAGE

Union Springs, Ala.—Wilbur Hill has been retained as consulting engineer for sewer work; estimated cost, \$45,000.

Pasadena, Cal.—Council is considering negotiations with J. T. Harris, of Santa Monica, for erection of experimental plant at city farm for reduction of sewage by electricity.

San Francisco, Cal.—Resolution has been passed authorizing construction of section E of North Point main sewer, at estimated cost of \$140,000.

Denver, Col.—City Engineer is making estimates for proposed storm sewer system for East and South Denver, to cost about \$2,500,000. It is thought 45,000 lots will be affected. It will take six months to complete estimates, and Board of Public Works will then proceed with construction in sections. Main line will be ten miles in length.

Bridgeport, Conn.—Council has authorized issuance of \$100,000 in bonds for sewer improvements.

Palmetto, Fla.—Citizens have voted to issue \$15,000 in bonds for extension of sewerage, water and street systems of city.

St. Augustine, Fla.—Election will be held Dec. 12 for voting on issuance of \$100,000 bonds for construction of complete sewerage system for city.

Moline, Ill.—Petition is being circulated for laying sewers from 21st to 27th Sts.

Indianapolis, Ind.—Following improvements will be made: Alley west of Barth, with local sewer; Broadway, from 34th to fair grounds, with local sewer; alley west of Reid, from alley south of Prospect to point 265 ft. south, with local sewer.

Terre Haute, Ind.—The United States Trust Co. has purchased \$65,000 city sewer bonds, bearing 4 per cent interest and running 20 years.

Burlington, Ia.—Board of Supervisors has adopted resolution to at once advertise for bids for purchase of \$308,000 worth of drainage district bonds. Total bond issue was \$342,000, and \$34,000 worth have already been disposed of.

Proctor, Minn.—Proposed plan to install sewer system has been postponed until definite information regarding cost of septic tank can be secured. System would cost about \$70,000, but taxable property of village would raise only \$35,000. To carry out scheme it may be necessary to incorporate village as city.

Brookhaven, Miss.—Mass meeting has been held for considering establishment of system of sewers; estimated cost, \$30,000.

Butte, Mont.—Resolution has been adopted for extension of Second Gulch sewer to point south of West Porphyry st.

St. Joseph, Mo.—Ordinances have been passed providing for construction of sewers in various sewer districts.

Bogota, N. J.—Borough Council has engaged engineers to formulate plans for sewerage disposal works.

Plainfield, N. J.—Resolution is being considered authorizing services of George W. Fuller to make inspection of sewer beds for purpose of recommending how to enlarge beds or equip them so they can properly dispose of increasing amount of sewage.

Brooklyn, N. Y.—Extensive sewer improvements have been planned by local board of Queens; estimated cost, \$156,150.

Poughkeepsie, N. Y.—Board of Public Works will construct street sewer from Montgomery st. trunk up Market st. to property owned by Christian Science Church.

Tupper Lake, N. Y.—Village trustees are considering plans for extension of sewer system.

Akron, O.—Council has passed ordinance to sell \$6,905 of bonds for purpose of repairing sewers.

Akron, O.—Ordinance is being considered providing for \$60,000 bond issue for improvement of main trunk sewer.

Youngstown, O.—Ordinance has been passed providing for construction of sewer in Kendall ave.

Dallas, Tex.—Plans have been adopted for more than two miles of sewer to cost \$35,000. Bids are being received.

Orange, Tex.—City Council has ordered laying of drain pipe of corrugated iron from Border st. to river.

Everett, Wash.—Ordinance has been introduced providing for municipal water system.

Toronto, Ont.—Election will be held Jan. 1, 1912, for voting on appropriation of \$420,000 for construction of seven more filter beds.

CONTRACTS AWARDED

Avoca, Ia.—By City Council, for constructing sewers planned for city sewerage system, to C. H. Camoy, of Harlan, at \$11,520.

Belle Plaine, Iowa.—For constructing sanitary sewers and extending the water works as follows: (a) lateral sewers; (b) outlet sewers; (c) water-works extension; to Geo. A. Mallory & Co., Kewanee, Ill., (a) \$24,082, (b) \$5,449, and Hoosier Construction Co., Great Bend, Kan., (c) \$17,173. Other bids as follows: Lytle Construction Co., Sioux City, Iowa, (a) \$27,765, (b) \$7,514, (c) \$18,019; Dearborn & Jackson, Cedar Rapids, Iowa, (a) \$29,981, (b) \$7,262; Dunnegan & Briggs, Shenandoah, Iowa, (a) \$30,292, (b) \$7,540, (c) \$19,226; Fraser & Danforth, St. Paul, Minn., (a) \$32,948, (b) \$7,826, (c) \$21,763; Geo. M. King Construction Co., Des Moines, Iowa, (a) \$33,752, (b) \$8,917; J. W. Turner Improvement Co., Des Moines, Iowa, (a) \$33,752, (b) \$8,997, (c) \$20,334; M. A. Camery, Harlan, Iowa, (a) \$34,291, (b) \$6,742, (c) \$18,256; Lana Construction Co., Harlan, Iowa, (a) \$33,233, (b) \$6,599; Independent Construction Co., Davenport, Iowa, (a) \$35,023, (b) \$7,828; Katz Construction Co., Omaha, Neb., (a) \$35,273, (b) \$7,260, (c) \$18,954; Thill-Manning-Whalen Co., La Crosse, Wis., (a) \$36,724, (b) \$8,741, (c) \$23,840; W. D. Yeager Co., Cedar Rapids, Iowa, (a) \$37,064, (b) \$7,855; Hawkeye Construction Co., Webster City, Iowa, (a) \$37,671, (b) \$7,745; Hoar & Parkinson, Iowa City, Iowa, (a) \$38,923, (b) \$8,341; Mulholland, Kuehn & Co., Kaukauna, Wis., (a) \$39,397, (b) \$8,349; Guy E. Smith, Indianola, Iowa, (a) \$43,130, (b) \$7,458, (c) \$18,560; Wm. Fitch, Omaha, Neb., (a) \$41,787, (b) \$6,961; Blackhawk Construction Co., Waterloo, Iowa, (a) \$42,404, (b) \$6,068, (c) \$19,120; John Brogan, Green Bay, Wis., (a) \$44,833, (b) \$7,466, (c) \$21,502; E. L. Dimick, Laurel, Neb., (b) \$6,636, (c) \$18,361; Thos. Carey & Son, Clinton, Iowa, (a) \$7,001, (c) \$18,663; Rink & Schnell, Clinton, Iowa, (b) \$8,263; A. Korneman & Co., Muscatine, Iowa, (b) \$10,259, (c) \$25,204; Keel-Stevens Co., Mason City, Iowa, (c) \$17,810; T. C. Brooks & Sons Co., Jackson, Mich., (c) \$17,851; Cook Construction Co., Des Moines, Iowa, (c) \$18,383; Des Moines Bridge & Iron Co., Des Moines, Iowa, (c) \$18,397; M. H. Meredith, West Liberty, Iowa, (c) \$18,645; Wm. Tuney, Joliet, Ill., (c) \$18,995; Greene Bros., Albert Lea, Minn., (c) \$20,720.

Cedar Rapids, Iowa.—For constructing concrete storm sewer on N Ave., from river to Eleventh St., to Dearborn & Jackson at \$19,451.

New Orleans, La.—For constructing lined and covered canals and pipe lines of Napoleon Ave. system, Contract 36-D, by Sewerage and Water Board to A. L. Patterson, New Orleans, \$977,006. Other bids as follows: Standard Concrete Construction Co., Chicago, Ill., \$1,083,976; Dameron, White, Smith Co., New Orleans, \$1,269,286; Inland Waterways Dredging & Equipment Co., New York, \$1,118,373; Jefferson Construction Co., New Orleans, \$1,201,735; Bancroft & Ross, New Orleans, \$1,152,645. George G. Earl is Gen. Supt. Noted July 13.

Clarksdale, Miss.—For extending sewers and water-works into suburbs as follows: Air compressor and water-works pump, Allen Engineering Co., Memphis, Tenn.; water pump, Clarksdale Manufacturing Co., Clarksdale; 53,000 lin. ft. of iron pipe, U. S. Cast Iron Pipe Co., Birmingham, Ala.; 100 valves and hydrants, Columbia Iron Works, Chattanooga, Tenn.; laying sewer and water pipe, Mischler Co., Chattanooga. Total cost, \$60,000.

Missoula, Mont.—For laying storm sewer, to James Kennedy, of Fargo, N. D., at \$50,000.

Rochester, N. Y.—By Board of Contract and Supply, for construction of sewers in Heidelberg st., to F. V. Brotsch, at \$681, and in Pomeroy st., to Passero & Petrisso Co., at \$2,861.75.

Altoona, Pa.—By Board of Public Works, for construction of sewer to take care of waters of Ginter's Run, to Fogle & Co., of Hollidaysburg, at \$14,925.50. Other bids as follows: Bennett & Smith, \$18,033.50; Murphy & Appleby, \$18,697; A. L. Anderson & Bro., \$28,655.

Chester, Pa.—By City Council, for construction of 75 sewer inlets, to E. H. Butler.

Brownsville, Tex.—By City Council for construction of system of storm sewers to N. E. Rendall.

Richmond, Va.—For construction of Bacon Quarter Branch sewer, to H. L. Driscoll Co., at \$19,000.

Kenosha, Wis.—By Common Council for construction of Ashland Ave. sewer to Michael Steinbach.

BIDS RECEIVED

Anaheim, Cal.—For constructing municipal sewer system: Chamberlain, Williamson & Chamberlain, Pasadena, \$41,425; H. Gould, \$42,556; R. N. Nikcevic, Los Angeles, \$43,540; H. B. Register, Los Angeles, \$45,478; Mlagenovich & Gillespie, Los Angeles, \$45,480; S. Grobovach, Los Angeles, \$45,898; Watson & Spicer, Oakland, \$46,209; Peter Grbovach, Los Angeles, \$47,049; California Ornamental Brick Co., Los Angeles, \$48,491; John Radich, Los Angeles, \$48,500; W. N. Hendricks, Los Angeles, \$48,950; John Balch, Los Angeles, \$51,985; Westlake Construction Co., Los Angeles, \$53,240. The system will comprise 51,910 lin. ft. of 6-in., 11,547 of 8-in., 7,084 of 10-in. and 4,533 of 12-in. pipe; 168 manholes; 55 light wells and washouts, and 51 flush tanks.

Bucyrus, Ohio.—For construction of sewer in Sandusky and Oakwood aves., as follows: Smith & Penny, Lorain, concrete, \$41,598; pipe, \$30,307; block, \$32,867; brick \$31,518. W. W. Kelly, Cleveland, pipe, \$43,028; block, \$39,234. Thomas F. Hurley, Marion, block, \$35,238. Huston & Henderson, Logan, pipe, \$36,571; brick, \$36,335. L. P. Battefeld, Bucyrus, concrete, \$50,669; pipe, \$50,669; block, \$50,669. Oberlander & Oberlander, Bucyrus, pipe, \$31,287; block, \$31,671; brick, \$31,855. Drake & Sons, Marion, pipe, \$36,250; brick, \$39,223.

Youngstown, O.—West ave. sewer, James Cumiskey, \$713.10; P. and P. J. Grady, \$731.46. Albert St. sewer, P. & P. J. Grady, \$758.30; James Cumiskey, \$765.

Clinton, S. C.—For constructing a system of sanitary sewers, consisting of approximately 9 miles of sewer, 8 to 12-in., and 2 settling tanks, and the following are the total of bids received: Geo. W. Waring, Columbia, S. C., \$27,909; Abee & Hart, Hickory, N. C., \$27,811; Sul. Long, Bessemer, Ala., \$27,374; Dole & Myers, Meridian, Miss., \$27,193; Charleston Engineering & Construction Co., Charleston, S. C., \$27,738; Greenwood Hardware Co., Greenwood, S. C., \$30,307; I. C. Mishler, Chattanooga, Tenn., \$27,640; W. P. Flynn & Co., Chattanooga, Tenn., \$29,984; F. W. Benner & Co., Eastman, Ga., \$28,822. Engineers, J. H. McCrary Co., 1311 Empire Bldg., Atlanta, Ga.

WATER SUPPLY

Tucson, Ariz.—Installation of pumping machinery on Brown and Hart ranches to furnish water for domestic and irrigation purposes has been authorized; cost, between \$12,000 and \$15,000.

Exeter, Cal.—Voters have authorized \$42,000 bond issue for installation of water works.

Pasadena, Cal.—City Clerk has been authorized to advertise for bids for 3,800 ft. of 4-in. cast-iron pipe for water main along Lincoln ave.

Pasadena, Cal.—Dam to cost \$100,000 will be constructed across upper Arroyo Seco watershed region.

Riverside, Cal.—Directors of Riverside Water Co. have authorized tentative offer to city of domestic system for \$750,000. Heretofore it has been the plan to take over irrigating and domestic systems, but directors now are unanimous on retaining irrigating system. Directors will confer with City Council with regard to plan and same will be submitted to stockholders for approval. City will then call bond election in amount decided upon.

Palmetto, Fla.—Citizens have voted to issue \$15,000 in bonds for extension of water, sewerage and street systems of city.

Augusta, Ga.—Commissioner of Public Works has recommended that Council authorize laying of pipe line across Wrightsboro rd. to land owned by G. H. Nixon, so that water used in washing city filters could be dumped there.

Cordele, Ga.—City will consider bond issue for \$20,000 for extension of water and sewer systems.

Jackson, Ga.—Citizens have voted to issue \$12,000 of bonds for improving water-works system and electric light plant.

Bement, Ill.—City contemplates spending \$7,616 for water mains.

Freeport, Ill.—City Council is considering purchase of water works plant.

Melvin, Ill.—Special election will be held for voting on \$8,000 bond issue for installation of water works system.

Kendallville, Ind.—Plans are being prepared for rebuilding water works system; estimated cost, \$20,000.

Casey, Iowa.—Citizens have voted to issue \$14,000 of bonds for construction of water-works system.

Redfield, Ia.—Citizens have voted \$15,000 bond issue for establishing of water works and electric light systems.

Lafayette, La.—City Council has adopted ordinance providing for issuance of \$50,000 for purpose of renovating water works and electric light system.

Athol, Mass.—City has awarded \$30,000 4 per cent water bonds, dated Aug. 1, maturing \$1,000 each year from 1912 to 1941, inclusive, to Parkinson & Burr, at \$104.223.

Farmington, Mich.—Taxpayers have authorized issuance of \$15,000 worth of bonds for construction of pumping station.

Laurium, Mich.—Council will bond village for \$9,000 for water improvements.

Pacific, Mo.—At special election for \$15,000 bond issue for municipal water system, proposition carried by vote of 280 to 11 against.

Utica, Neb.—Utica has voted \$15,000 bonds for water works at special election. Vote was 92 to 38.

Kenilworth, N. J.—Resolution has been passed requesting Council to adopt proposition submitted by New Orange Park Water Co. for installing water here; estimated cost, \$6,500.

Weldon, N. C.—By safe majority in election on question of bond issue of \$40,000 for establishment of water works, only 10 votes were cast against same.

Fargo, N. D.—City Council has passed resolution authorizing City Clerk to advertise for bids for laying of water mains in city.

Akron, O.—Ordinance has been passed providing for election on Dec. 5 for voting on \$815,000 bond issue for purpose of buying plant of Akron Water Works Co.; also ordinance has been presented providing for issuing of bonds in sum of \$160,000 for purchase of land for water rights and building of dams.

Hubbard, O.—Village Council has authorized bond issue of \$30,000 for establishment of water works plant.

Oxford, O.—Bonds value \$4,000 have been sold for extension to water mains.

Muldrow, Okla.—Election will be held to vote on issuance of \$26,000 of bonds for installation of water works.

Gladstone, Ore.—Bonds value \$20,000 have been voted for water works improvement.

Woodburn, Ore.—Citizens will vote on \$25,000 bond issue for municipal water system.

Arthur City, Tex.—Voters are in favor of \$12,000 bond issue for purpose of putting in water works system.

Cameron, Tex.—City Council has granted franchise to Hamilton Bros., of Chicago, for installing system of water works.

Cuero, Tex.—Water Works Committee of City Council have contracted with Pittsburg Meter Co. for eighteen meters, which will be put in service at once. Twelve of these meters are to be placed in different houses and six are to be placed on different steam plants in city. Council expects to install meters all over town as soon as practicable.

Harlingen, Tex.—Election will be held Sept. 26 for voting on \$22,000 bond issue for water works.

Molissa, Tex.—City will have water-works system. Contract has been let for 25,000-gallon steel tank.

Manitowoc, Wis.—Contract has been signed to transfer water works plant to city on Oct. 2 for \$247,500.

Windsor, Can.—Bids have been rejected by Water Commissioners for proposed new intake in bed of Detroit River, and new bids will be invited.

Ceara, Brazil, S. A.—President of Brazilian State of Ceara has raised loan of \$2,895,000 to be utilized for water supply and drainage system of Fortaleza.

CONTRACTS AWARDED

Redlands, Cal.—For building of two sterilized plants at reservoirs of Domestic Water Co., to Smith, Emery & Co., Los Angeles, at \$5,000.

Stanford, Ill.—For constructing system of water mains to C. C. Bowman, at \$5,968. Other bids were: Geo. McIntosh, \$6,151; Delahanty & Co., \$6,518; Chris. Ebert, \$7,111.

Laporte, Ind.—For rebuilding of water works plant at little Kankakee River, to A. M. Osborn, of Chicago.

Belle Plaine, Iowa.—For water works extensions from plans of Iowa Eng. Co., of Clinton, to Hoosier Construction Co., of Great Bend, Kan., as follows: 2,680 ft. 8-in. c.-i. pipe, laid, 80 cts.; 5,250 ft. 6-in. c.-i. pipe, 60 cts.; 22,300 ft. 4-in. c.-i. pipe, 46 cts.; 14,000 lbs. specials, per lb., 2.5 cts; total, including hydrants, valves and valve boxes, \$17,173. Totals of other bids: A. Korneman & Co., Muscatine, \$25,205; Keel-Stevens Co., Mason City, Ia., \$17,810; T. C. Brooks & Sons Co., Jackson, Mich., \$17,852; Cook Construction Co., Des Moines, Ia., \$18,383; Des Moines Bridge & Iron Co., Des Moines, Ia., \$18,397; M. H. Meredith, West Liberty, Ia., \$18,645; Wm. Tuney, Joliet, Ill., \$18,995; Greene Bros., Albert Lea, Minn., \$20,720; Lytle Construction Co., Sioux City, \$18,019; Donnegan & Briggs, Shepandoah, \$19,227; Fraser & Danforth, St. Paul, Minn., \$21,763; J. W. Turner Improvement Co., Des Moines, \$20,334; M. A. Camery, Harlan, \$18,256; Katz Construction Co., Omaha,

Neb., \$18,954; Thill-Manning-Whalen Co., La Crosse, Wis., \$23,840; Guy E. Smith, Indianola, Ia., \$18,560; Blackhawk Construction Co., Waterloo, \$19,120; John Brogan, Green Bay, Wis., \$21,502; E. L. Dimick, Laurel, Neb., \$18,361; Thos. Carey & Son, Clinton, \$18,664.

Council Bluffs, Iowa.—For construction of water-works plant: To C. C. Norgaard, Council Bluffs, for setting reservoir, at \$41,500; Allis-Chalmers Co., Milwaukee, Wis., two 100HP. motors, \$1,504; Snow Steam Pump Co., Buffalo, pump, \$22,510; 5,000 bbls. of Portland cement, George A. Hoagland Lumber Co., at 98 cts. per bbl.

St. Ignatius, Mont.—To Nelson Rich of Prosser, Wash., for construction of Pablo dams and canals, Flathead irrigation project, Montana. Three dams and 8½ miles of canals are included in the contract, involving the placing of about 234,000 cu. yds. of earth excavation in the dams and the excavation of about 200,000 cu. yds. of material from the canal. Work is located from two to three miles south of Polson, Mont. Contract price is \$115,693 for Class "A" material, or \$116,093 for Class "B."

Keypoint, N. J.—For laying 1,000 ft. of iron water pipe in Matt, New and 2d sts., to supply water to John W. Keough property, to Harrison Construction Co., at 12c. per ft., the borough to furnish pipe and special castings.

Williamstown, N. J.—By Water Commissioners of Williamstown, for furnishing Monroe Township with water for fire protection, to Monroe Water Co.

New York, N. Y.—By Board of Water Supply as follows: Contract 107 for valves, hydraulic cylinders and appurtenances, to Chapman Valve Mfg. Co., Indian Orchard, Mass., \$121,629. Contract 87 for constructing Brooklyn Conduit of Catskill Aqueduct, to Wm. F. Donovan & Chas. Cranford, 136 Remsen st., Brooklyn, for \$366,015.

Rochester, N. Y.—By Board of Contract and Supply, for laying 24-in. water pipe through Leighton ave., to H. C. Schroeder, at \$3,557.50.

Silver Springs, N. Y.—To William Sammeohays & Sons, Rochester, N. Y., for construction of power house, pumping station and foundations for engines for water-works.

Charlotte, N. C.—For furnishing cast-iron water pipe to United States Cast Iron Pipe & Foundry Co., of Chattanooga, Tenn., and to Glamorgan Pipe & Foundry Co., of Lynchburg, Va., at \$130,000.

Murphy, N. C.—To A. A. Fain, to extend water works system, including 2¼ miles of 8-in. main and 16 x 16 x 8 concrete filter plant with capacity of 216,000 gal.; estimated cost, \$25,000.

Fargo, N. D.—For construction of steel tank in connection with water works system, to Grambs & Peet Co., Bismarck.

Cincinnati, O.—For building western hills water tanks on Ferguson rd., to L. Eld Concrete Steel Co., at \$18,089.

Allentown, Pa.—For new water plant service at State Insane Asylum at Rittersville, to George H. Hardner, of Allentown, at \$29,950.

Fort Worth, Tex.—By City Commission and Board of Trade Water Committee, for construction of Big West Fork reservoir and pipe line to city as follows: Underground Construction Co., St. Louis, masonry dam, \$248,068; Underground Construction Co., earth embankment, \$114,219; Dennis Fagan, Fort Worth, settling reservoir, \$36,260; Hedges Construction Co., Springfield, Mo., conduit, \$104,435; total, \$512,982.

Hearne, Tex.—By City Council for machinery and other material for proposed municipal water-works plant and distributing system. The Universal Pipe Manufacturing Co., of Birmingham, Ala., secured the contract for mains and fittings; Chicago Steel & Iron Works, of Chicago, Ill., for storage tank and water tower; and A. M. Lockett Machinery Co., of Dallas, Tex., for boilers, engine, pumps, heater and air compressor.

Clinton, Wis.—By Village Board for furnishing pumping engine for water-works station to John Thompson Co., Beloit, Wis.

BIDS RECEIVED

Muskegon, Mich.—For 48-in. x 7,000 ft. intake pipe, intake well at shore of Lake Michigan, and water mains for distributing systems, including valves, hydrants and pipe connections with existing systems from plans of Riggs & Sherman Co., 613 Nasby Bldg., Toledo, O., and the only complete bid received was that of Nash-Dowdle Co., of Chicago, Ill., at \$423,786 for c.-i. pipe, or \$400,000 if steel pipe is used. For everything but the intake pipe, T. H. Inglehart, of Chicago, bid \$216,307. The Lynchburg Foundry Co., of Lynchburg, Va., bid on pipe only, \$185,422. United States Cast Iron Pipe & Foundry Co., of Chicago, Ill., bid \$187,842.50 for pipe. James B. Clow & Son, Chicago, bid \$143,710.60 on pipe for the distribution system, not including the in-

take. These bids included valves. The C. H. Starke Dredge & Dock Co., of Milwaukee, Wis., bid \$98,000 for the intake, the city to furnish the material. The Muskegon Boiler Works bid \$43,000 for steel pipe in the intake line. (This was an alternative bid, the specifications calling for cast-iron pipe.) And the following companies bid on valves: Darling Pump & Manufacturing Co., Williamsport, Pa., valves 6 to 47-in., \$5,888; Chapman Valve Manufacturing Co., valves 6 to 24-in., \$8,352; Roe-Stephens Manufacturing Co., Detroit, Mich., valves 6 to 24-in., \$5,871.50; Ludlow Valve Manufacturing Co., Troy, N. Y., valves 6 to 48-in., \$7,706, and Kennedy Valve Manufacturing Co., Chicago, Ill., valves 6 to 48-in., \$8,152.

Fort Worth, Tex.—For rock on reservoir as follows: Masonry Section—Underground Construction Co., \$248,068; Texas Building Co., \$261,935; P. M. Johnson & Son, \$283,582; Clinton Construction Co., \$293,533; Nash Bros., \$298,409; Roach & Mannigan, \$299,871; S. M. Bush, \$305,880; Burk Bros., \$310,337; R. L. Leonard, \$323,004; H. S. Moore, \$334,432; Griffith & McMurray, \$340,888; Mansfield Engineering Co., \$366,491; Twohy Bros., \$377,538; U. S. Construction Co., \$423,227; Maury & Faulhaber, \$459,372. Earth Embankment—Burk Bros., \$141,719; Nash Bros., \$148,757; Griffith & McMurray, \$155,196; H. S. Moore, \$161,053; Maury & Faulhaber, \$169,850; Texas Building Co., \$171,053; P. M. Johnson & Son, \$172,658; S. M. Bush, \$175,179; R. L. Leonard, \$181,879; U. S. Construction Co., \$186,134; Clinton Construction Co., \$190,729; Mansfield Engineering Co., \$202,568. Settling Basin—Dennis Fagan, \$36,260; S. M. Bush, \$36,327; Texas Building Co., \$37,144; R. L. Leonard, \$39,277; Griffith & McMurray, \$62,575; Clinton Construction Co., \$43,100; Roach & Mannigan, \$45,430; Maury & Faulhaber, \$48,547; Burk Bros., \$49,450; U. S. Construction Co., \$49,583; H. S. Moore, \$51,375; Twohy Bros., \$53,895; P. M. Johnson & Son, \$62,425; Nash Bros., \$62,768; Mansfield Engineering Co., \$79,645. Conduit Line to City—P. M. Johnson & Son, \$103,335; Hedges Construction Co., \$104,435; Burk Bros., \$113,600; Roach & Mannigan, \$114,235; H. S. Moore, \$116,350; Mansfield Engineering Co., \$117,950; Underground Construction Co., \$118,630; Twohy Bros., \$119,908; S. M. Bush, \$121,285; Texas Building Co., \$121,812; Griffith & McMurray, \$122,842; Nash Bros., \$125,465; R. L. Leonard, \$126,105; Tarrant Construction Co., \$129,890; Clinton Construction Co., \$145,425; Maury & Faulhaber, \$154,700. General Bid—Texas Building Co., \$591,496; Burk Bros., \$615,106; P. M. Johnson & Son, \$622,000; Nash Bros., \$635,399; S. M. Bush, \$638,671; Roach & Mannigan, \$647,709; Griffith & McMurray, \$658,920; H. S. Moore, \$666,210; Clinton Construction Co., \$672,787; R. L. Leonard, \$673,265; Twohy Bros., \$722,986; Mansfield Engineering Co., \$766,655; Maury & Faulhaber, \$832,470.

LIGHTING AND POWER

Escalon, Cal.—Installation of electric lighting system is planned by Escalon Water & Light Co.

Fullerton, Cal.—Electric power plant will be installed in high school buildings to be erected here.

Kelseyville, Cal.—James A. Gunn, Jr., has applied for 50-year franchise to erect and operate electric transmission lines.

Livermore, Cal.—Officials of Pacific Gas & Electric Co. have visited this city to plan erection of extensive gas manufacturing plant for supplying the product to Pleasanton and Livermore with light and heat.

Vallejo, Cal.—Election will be held for voting on bond issue for installation of municipal electric lighting system.

Thomaston, Conn.—Installation of electric lighting system is being discussed.

Peoria, Ill.—County Board has voted funds for installation of ornamental light standards on Jefferson st.

Anderson, Ind.—Board of Public Works is considering installation of turbine engine and electric generator at local electric light plant; cost, \$30,000.

Iowa Falls, Iowa.—Election will be held for voting on proposition to issue franchise to construct and operate electric light and heating plant.

Redfield, Ia.—Citizens have voted \$15,000 bond issue for establishing of electric light and water works system.

Silver City, Ia.—Special election for purpose of voting on granting of electric light franchise to Silver City Light and Power Company brought out only a fair vote, total number of ballots cast being eighty, of which seventy-six were in favor of granting franchise and three opposed it.

Lafayette, La.—City Council has adopted ordinance providing for issuance of \$50,000 for purpose of renovating electric light and water works plant.

Ilion, N. Y.—Town Board of Herkimer is considering proposition to furnish lighting for North Ilion by entering into contract with Village Trustees of Ilion for seven lights, power to be furnished from Ilion's municipal plant, money for which is to be paid by town of Herkimer, taxed pro rata on residents of North Ilion.

Poughkeepsie, N. Y.—Common Council has ordered extension of cluster lights to junction of Church st.

Cleveland, O.—Council committees will vote on Pelcinski resolution, authorizing people of city to pass upon question of issuing \$2,000,000 bonds for municipal light plant at the November election.

Springfield, O.—City Council is discussing installation of municipal lighting plant.

Muldrow, Okla.—Election will be held for voting on issuance of \$7,000 of bonds for electric lighting system.

The Dalles, Ore.—N. C. Wood, of Hood River, has applied for franchise to erect and maintain poles and wires and supply city with electricity for power and light.

Altoona, Pa.—Resolution has been passed for establishing of system of boulevard lights about city hall at 13th ave. and 12th st.

Wilkes-Barre, Pa.—Ordinance has been passed granting franchise to Wilkes-Barre Light Co.

Wilkes-Barre, Pa.—Franchise has been granted to Cummings & Dunfee, of Syracuse, N. Y., for erection of electric lighting plant in this city.

Elizabeth City, Va.—Proposition to grant franchise to company to establish gas plant is being discussed.

Norfolk, Va.—Board of Control has ordered placing of incandescent lights in 10th Ward at 18 points in addition to 31 lights already installed.

CONTRACTS AWARDED

Kingsburg, Cal.—For construction of new power house to Johnson Bros.

Pasadena, Cal.—For wiring connections and ornamental light poles on South Orange Grove ave., to W. A. McNally & Co., at \$34,400.

Shelbyville, Ill.—To install gas plant, at cost of \$32,000, to American Constr. Co., of Newton, Ia.

Roland, Ia.—For erection of transmission line from Roland to Story City in connection with municipal electric light system, to C. B. Nelson, Ames, Ia., at \$402.42 per mile, and for wiring town to C. W. Rowland, Des Moines, Ia., at \$2,896. Electricity for operating electric light system will be secured from municipal electric plant in Story City, Ia.

Melrose, Mass.—To Malden Electric Co., for lighting city streets, for period of ten years. Appropriation of \$15,680 for street lighting, for one year, has been made.

Binghamton, N. Y.—For construction of power house for Susquehanna Valley Home, to C. W. Mitchell Co., at \$4,573, and for heating plant, to Gaylord & Etapene, Binghamton, at \$3,356.

Hardwick, Vt.—For improvements to municipal electric light plant as follows: Electrical machinery to the Westinghouse Electric Co., water wheels to S. Morgan Smith Co., and for concrete dam to the Woodbury Granite Co.; total cost, \$50,000. Engineer, Frank O. Sinclair, of Burlington.

Hyde Park, Vt.—For water wheels, to S. Morgan Smith Co., and for electrical machinery, to Westinghouse Co. Contract for dam not yet let.

Fond du Lac, Wis.—By Common Council, for furnishing and installing 42 Corinthian light columns on Main st., from court house to Division st., to Central Construction Co., Oshkosh, Wis., at \$5,000.

Jefferson, Wis.—By Board of Water and Light Commissioners, for additional equipment for electric lighting service station, for 125 kva. generator, to Fort Wayne Electric Co., Fort Wayne, Ind., and Madison, Wis.; for engine, Ames Iron Works, Oswego, N. Y.

Mazomanie, Wis.—For installation of electric lighting plant, to Ft. Wayne Electric Co., of Ft. Wayne, Ind., for \$4,715.

Winnipeg, Man.—For paper insulated cable, to Wire & Cable Co., and for rubber insulated cable, to Standard Underground Cable Co., of Pittsburgh, Pa.

FIRE EQUIPMENT

Little Rock, Ark.—Fire station to cost \$5,000 will be erected.

Emeryville, Cal.—Resolutions have been introduced calling for bids for motor-driven fire pumping engine and hose wagon.

San Francisco, Cal.—Board of Public Works has recommended to Supervisors that appropriation of \$9,000 be made for repairs to fire department buildings.

Southington, Conn.—Appropriation of \$5,000 has been voted for purchase of automobile fire truck.

Washington, D. C.—Fire Chief has recommended to District Commissioners purchase of about \$50,000 worth of motor-propelled vehicles.

Evansville, Ind.—Appropriation of \$6,000 will be considered by City Council for purchase of motor fire apparatus and motor patrol.

Gary, Ind.—Common Council has authorized \$50,000 bond issue for erection of police and fire station; also \$5,000 for purchase of second auto hose cart.

Braintree, Mass.—Town is considering purchase of auto-combination wagon.

Quincy, Mass.—Fire department is considering installing of auto engines, ladder trucks, hose and chemical wagons and cars.

Springfield, Mass.—Finance Committee has approved of appropriation of \$60,000 for erection of fire station in North st.

Shelbyville, Mo.—Citizens will vote on bond issue for new fire engine and other apparatus.

Linden, N. J.—Petition is being considered asking for appropriation of \$3,000 for purchase of proper fire equipment.

Newburgh, N. Y.—Committee will ask for appropriation of \$2,000 for purchase of 2,000 ft. of hose for use in fire department.

Syracuse, N. Y.—Bids will shortly be asked for rebuilding of Engine No. 9.

Niagara Falls, N. Y.—Bids are being received for construction of engine house; estimated cost, \$10,000.

Marietta, O.—New engine house will be erected to cost \$10,000.

Tulsa, Okla.—Appropriation of \$10,000 will be made for erection of fire station.

Bethayres, Pa.—Fire Committee of Bethayres has given order for new chemical engine, to be ready within 30 days.

Rittersville, Pa.—Erection of fire station has been ordered.

Columbia, S. C.—Fire Department Committee has requested Council to purchase automobile combination truck and chemical engine.

Corpus Christi, Tex.—Voters have decided in favor of \$55,000 bond issue for purchase of fire apparatus and erection of city hall.

Floresville, Tex.—Erection of fire house is being discussed.

Richmond, Va.—Appropriation of \$1,200 has been made for repairs to No. 5 engine house.

Spokane, Wash.—Election will be held Nov. 7 for voting on \$100,000 bond issue for erection and equipment of fire stations.

Monterey, Mex.—At cost of \$16,000 city will install 100 fire hydrants in principal business section. Besides this expense there will be monthly rent to water works company of \$25 each.

CONTRACTS AWARDED

Indianapolis, Ind.—For motor fire apparatus for fire department as follows: Squad wagon, carrying eight men, 250 ft. of chemical hose and 35-gal. chemical tank, to Meridian Auto Co., representing Packard Motor Car Co., \$5,277.40; ladder truck, carrying 130 ft. of ladders, to Mals Motor Truck Co., \$4,800; combination hose and chemical truck and pump engine, capable of pumping 600 gal. of water a minute, to American La France Engine Co., \$5,500 and \$7,500, respectively. Contract was let to Bernd Bros. for horse-drawn hose wagon for hose company No. 15, at \$385.

Blackstone, Mass.—For 10 hydrants for fire purposes for 10 years and extension of water mains through Main st., to Masonic Hall, and from Main st. through Bridge st., to square, to Woonsocket Water Commissioners.

St. Louis, Mo.—For supplying 820 fire plugs to American Foundry & Machine Co., at \$18,412.50.

Kearny, N. J.—By Town Council, for addition to Midland fire house, to P. J. Reynolds, at \$2,000. Other bids as follows: John Faichney, \$2,160, and James J. Dunn, \$2,397.

Passaic, N. J.—For installation of fire alarm system, to Gamewell Fire Alarm Telegraph Co., at \$21,750.

Williamsport, Pa.—For fire hose, to Fabric Fire Hose Co., 600 ft.; Iroquois Rubber Co., 200 ft.; Eureka Fire Hose Mfg. Co., 200 ft.

BIDS RECEIVED

Seattle, Wash.—For 20,000 ft. of 2½-in. cotton fire hose: Boston Woven Hose & Rubber Co., \$11,600; P. C. Fire Supply Co., \$11,800; Bowers Rubber Co., \$11,800; Caldwell Machinery Co., \$12,200; Eureka Fire Hose Mfg. Co., \$13,400; Gorham-Revere Rubber Co., \$13,580; Diamond Rubber Co., \$13,600; American Rubber Co., \$13,950; Fabric Fire Hose Co., \$14,600.

BRIDGES

Birmingham, Ala.—Plans have been completed for bridges as follows: 40-ft. bridge on Birmingham Road, near Bessemer, and 20-ft. bridge on same road, a 60-ft. bridge over Black Creek, near McCalla, a 20-ft. bridge on the Newcastle Road, near Newcastle, and a 20-ft. and a 14-ft. bridge near Hueytown. Bids will shortly be asked.

Montgomery, Ala.—Tuscaloosa County has decided to take out its State aid in improvement of bridges and culverts.

Willows, Cal.—Bond issue for \$290,000 for construction of bridges has been voted for.

Augusta, Ga.—Plans are being prepared for arch over third level of canal on Twiggs st.; also construction of bridge over first level of canal at power house is being considered.

Greensburg, Ind.—Commissioners of Decatur County have appropriated money for construction of nine new bridges in county. Bids will be asked as soon as plans are approved.

Valparaiso, Ind.—County Commissioners of Daviess and Dubois Counties have adopted plans for construction of bridge over White River near Portersville. Bridge will be of steel construction with concrete floor, two abutments and one pier supporting the bridge. Bids will shortly be asked.

Council Bluffs, Ia.—Construction of concrete bridge across Indian Creek on North Main st. is being considered; estimated cost, \$20,000 to \$25,000.

Baltimore, Md.—Construction of \$1,000,000 bridge at Light st. has been recommended.

Libby, Mont.—Election will be held Oct. 28, for voting on bonding county for \$125,000 for purpose of constructing bridges and roads.

Durant, Okla.—Unofficial returns from special election indicate the proposition to issue \$130,000 county bridge bonds carried by small majority. Proposition to issue \$10,000 city bridge bonds carried by a large majority.

Pittsburgh, Pa.—Site is being discussed for erection of Bloomfield Bridge, for which \$500,000 bond issue was authorized.

Reading, Pa.—Berks County Commissioners are considering bids for new Penn st. bridge, and it is likely that L. H. Pocht, who was lowest bidder, at \$325,910, will receive award.

Scranton, Pa.—Ordinance has been passed providing for erection and construction of bridge over Stafford Meadow Brook on South Washington ave.

Fort Worth, Tex.—Election will be held for voting \$600,000 for bridges.

Moab, Utah.—County commissioners have decided to submit to taxpayers proposition to bond county for \$14,000 to be used in making fills for Moab bridges, for bridging Court House wash on Thompsons rd., and for improving Cisco-Castleton rd.

CONTRACTS AWARDED

Gilroy, Cal.—By City, for construction of bridge over creek, to William Radke, at \$4,000.

San Andreas, Cal.—By Board of Supervisors of Calaveras County for construction of steel bridge over Mokelumne River at Mokelumne Hill, as follows, (a) pin-connected bridge, (b) riveted bridge, to Clinton Bridge & Iron Works at \$10,530. Other bids follow: Hyde, Harges & Co., (a) \$12,240, (b) \$12,565; Cotton Bros., (a) \$11,804, (b) \$11,836; Jenkins & Wells, (a) \$11,329, (b) \$11,824; Healy-Tibbitts Construction Co., (a) \$14,990, (b) \$16,323; C. W. Swain, \$10,933.

Hartford, Conn.—For improvement at Ford st. bridge and taking down of parapet walls on both sides near the arch and rebuilding them, to Charles H. Slocomb & Co., \$4,296.25. Other bids: O'Neill Bros. & Nero, \$4,828.50; Hartford Paving & Construction Co., \$4,872.50.

Tampa, Fla.—For construction of bridge at Lafayette st., to Owego Bridge Co., of Owego, N. Y., at \$205,000.

Indianapolis, Ind.—For constructing culvert in Decatur Township, to Vlopp & Fritz, at \$1,359.

Spencer, Mass.—For constructing reinforced concrete bridge in Spencer to R. L. Whipple, Worcester, at \$5,180. Other bids were: Rendle & Stoddard, East Boston, \$5,180; Cavanaugh & Witham, Gloucester, \$5,173; Geo. T. Rendle, Boston, \$5,230; Northeastern Construction Co., Worcester, \$5,382; G. W. Carr Co., Worcester, \$6,188.

Southampton (L. I.), N. Y.—By Town Board, for bridge over canal at Westhampton Beach, to Groton Bridge Co., at \$10,189.

White Plains, N. Y.—By Board of Supervisors for rebuilding Van Cortland bridge over Croton River to De Revere, North Tarrytown, \$5,800. Other bids: Bernard F. Garland, \$6,900; Franklin Construction Co., \$6,900; for widening the bridge over the Byram River at Port Chester: Robert J. McKeon, \$3,995 (awarded contract); Bailey

& Merritt, \$4,165; Edward Jackman, \$5,840; Fallace Bros., \$6,220; Leo Slater, \$5,749.

Springfield, O.—By City Board of Control, for construction of concrete bridge over creek on West Couch st., near Russell st., to William H. Sieverling, for \$3,342.10.

Altoona, Pa.—For furnishing 10,000 ft. of 2-in. oak boards for repairing floor of 7th st. bridge, to R. C. Irvin, of Hollidaysburg, at \$21 per 1,000 ft.

Renovo, Pa.—For constructing steel superstructure of 3-span steel truss bridge, 490 ft. long, over West Branch of Susquehanna River, between Renovo and South Renovo, to Penn Building Co., of Beaver Falls, for \$23,987.

Vandergrift, Pa.—For repairing County Bridge across Kiskimencos River, to Capital Construction Co., Columbus, O., at \$5,230.

Everett, Wash.—By county commissioners for replacement of wooden bridge over Sultan river at Sultan with steel spans to International Contract Co., at \$10,570. Bids as follows: International Contract Company, Seattle, plank floor, \$19,370; block floor, \$12,440; temporary bridge, \$500; Snohomish Iron Works, plank, \$11,365; block, \$12,265; temporary, \$1,050; Portland Bridge & Iron Company, plank, \$11,840; block, \$13,415; temporary, \$990; Puget Sound Bridge and Dredging Company, plank, \$11,876; block, \$13,526; temporary, \$1,275; Northwestern Bridge Company, plank, \$11,968; block, \$13,389; temporary, \$545; Washington Engineering Company, plank, \$12,100; block, \$13,565; temporary, \$14,275; Everett Construction Company, plank \$12,237.62; block, \$13,899.96; temporary, \$986.43; Central States Bridge Company, plank, \$12,530; block, \$14,020; temporary, \$850; J. A. McEachern Company, plank, \$14,277; block, \$15,512; temporary, \$1,305.

Trois Rivières, Que.—For constructing bridge over St. Maurice River, to Germain & Page, at \$11,850. Other bidders were: G. A. Gruninger, \$11,950; Anseline Dube, \$14,975.

MISCELLANEOUS

Berkeley, Cal.—City Council is considering plans for erection of garbage incinerator.

Berkeley, Cal.—City Council is considering purchase of municipal ambulance and police patrol.

Oakland, Cal.—Resolutions calling for sale of \$1,633,000 worth of bonds have been authorized by City Council.

Oakland, Cal.—City Council has adopted resolution directing City Attorney to prepare form of bonds in recent issue of \$2,900,000 for school buildings and sites and for municipal auditorium. It is expected that \$1,000,000 of school bonds and \$25,000 of auditorium bonds will have been sold by November for delivery in December.

San Bernardino, Cal.—Citizens will vote upon proposed high school bond issue Oct. 4. Sum to be raised is \$230,000, group of six buildings to have capacity of 1,000 students.

San Francisco, Cal.—Board of Health recommends construction of number of public comfort stations underground in various districts of city.

Sacramento, Cal.—Plans are being prepared for extension of City Wharf south from N st.

Grand Junction, Colo.—City commissioners will probably discuss proposition for taking over 160 acres of land near city and converting it into public park.

Hartford, Conn.—Plans and estimates are being considered for proposed house of comfort in rear of City Hall and front of postoffice.

Brooksville, Fla.—Ordinance has been passed authorizing issuance of \$16,500 bonds for municipal improvements.

Jacksonville, Fla.—Council has been asked for appropriation of \$50,000 for erection of contagious disease hospital, \$10,000 of which amount will be used for building pavilion for persons suffering with tuberculosis.

St. Petersburg, Fla.—Plans are being considered for erection of city jail; cost, \$4,000.

Augusta, Ga.—Installation of alarm system in police department is being considered.

Freeport, Ill.—After making tour of city and inspecting small parks, Messrs. Robinson and De Forrest, landscape architects, will submit plan for Freeport's park system in about sixty days. System of boulevarding is to be embraced in plans.

Mound City, Ill.—Citizens of Pulaski County have voted \$52,000 bond issue for erection of county court house and jail.

Gary, Ind.—Common Council has authorized \$50,000 bond issue for erection of police and fire station.

Peru, Ind.—Appropriation of \$10,000 has been made by County Council for beautifying court house lawn.

Lenox, Ia.—Special election will be held Sept. 25 for voting on question of issuing bonds to amount of \$30,000 for building and furnishing school house.

Harrodsburg, Ky.—Election will be held for voting on \$50,000 bond issue for purpose of building courthouse.

Pineville, Ky.—Election is being considered for voting on \$50,000 bond issue for public improvements.

Baltimore, Md.—Site in Clifton Park has been selected for erection of swimming pool and bath house; estimated cost, \$45,000 to \$50,000.

Nahant, Mass.—Bids will shortly be advertised for erection of town hall.

Springfield, Mass.—Finance Committee will authorize issuance of "public building loan" and bonds of \$320,000, and another loan for extension of Locust st., issuing bonds of \$20,000. Order for building loan specifies that proceeds of \$78,000 of bonds shall be used for construction of municipal heating plant, \$36,000 for construction of administration building and menagerie in Forest park, \$84,000 for the construction of the Sumner ave. school building, \$18,000 for the isolation hospital, \$68,000 for the new fire station in North st.

River Rouge, Mich.—Installation of Game-well system of police signal boxes has been decided; cost, \$2,570.

Benton, Mo.—Bids will be received until 1 p. m. Oct. 18 by County Court of Scott County for erection of fireproof courthouse building. Architect, H. H. Hohenschild, Suite 311, Navarre Bldg., St. Louis. James McPheeters, Clerk.

Paris, Mo.—Monroe County has voted in favor of \$100,000 courthouse.

Columbus, Neb.—Board of Supervisors has passed resolution calling special election for Dec. 19 for voting \$100,000 bonds for court house for Platte County.

Passaic, N. J.—City Council is considering erection of garbage disposal plant, and bond issue of \$105,000 may be voted for.

Passaic, N. J.—Erection of public market has been authorized.

Paterson, N. J.—Board of Finance will issue \$150,000 park improvement bonds.

Mt. Vernon, N. Y.—Bids will shortly be readvertised for erection of hospital building, as bids received were too high.

Watertown, N. Y.—Board of Public Works has adopted resolutions asking Common Council for \$2,800 for various improvement purposes.

Chickasha, Okla.—Town of Alex has been sold for \$40,000 to Washita Valley Improvement Company by E. J. Kelly. Alex is a town of 500 people, nine miles east of this city on branch line of Rock Island Railway.

Spokane, Wash.—City Commissioners have authorized Architect Julius Zittel to prepare plans for proposed municipal building.

Spokane, Wash.—Ordinance has been filed providing for resubmission of city hall bond question to voters Nov. 7. Bonds have been cut down from \$650,000 to \$500,000.

CONTRACTS AWARDED

South Bend, Ind.—By County Commissioners, for furnishing 50 voting machines for use in South Bend and St. Joseph County, to Empire Voting Machine Co., of Jamestown, N. Y., at \$800 each. Other bids as follows: Triumph Voting Machine Co., of Pittsfield, Mass., \$750 each; International Voting Machine Co., Elgin, Ill., at \$600 each, and Illinois Voting Machine Co., Chicago, at \$500 each.

Henderson, Ky.—For construction of dam across Ohio River, to William Eichel, at \$1,400,000.

Mankato, Minn.—To G. D. Gilbertson, of St. James, for draining Goose Lake and adjacent marshes, at \$18,950.

Kearny, N. J.—By Town Council, for erection of municipal building at Berlin and Maple sts. to house fire chief's auto, ambulance and patrol wagon, to P. J. Reynolds, at \$11,000. Other bids as follows: T. M. Mears, \$11,474; Thomas Reynolds & Son, \$11,850; James J. Dunn, \$11,852.

Charleston, S. C.—By Board of County Commissioners, for grading land and establishment of proposed ferry on Edisto Island, to J. Swinton Whaley.

Fort Worth, Tex.—To Underground Construction Co., Siebold Hotel, Fort Worth, for earth embankment and masonry section of dam and reservoir.

Nacogdoches, Tex.—By Commissioners, for erection of court house, to W. C. Whitney, of Beaumont, at \$51,700.

Ogden, Utah.—For stripping of South Fork reservoir dam site in Cobble Creek canyon, to J. P. O'Neill Construction Co., at \$3,105.

Petersburg, Va.—For installation of police alarm or patrol system to Signal Phone Alarm Co., of Milwaukee, at \$5,900.

Seattle, Wash.—For furnishing garbage incinerator boiler to Chas. C. Moore & Co., at \$3,557.41.

TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Indiana.....	Indianapolis.....	Sept. 29, 10 a.m.....	Grad., curb., pav. and otherwise improv. various sts. (5 jobs)...	C. A. Schrader, Pres. Bd. Pub. Wks.
Pennsylvania...	Deemston.....	Sept. 30, noon.....	Repairing section of public road beginning at county bridge on Ten Mile Creek a distance of 3,500 ft.....	Wm. Michener, Pres. Council.
New Jersey....	Westfield.....	Oct. 2, 8 p.m.....	Repairing and reconstr. 8,000 sq. yds. macadam pavement.....	Charles Clark, Town Clerk.
Minnesota.....	Little Falls.....	Oct. 3.....	Claying 40 rods on state road No. 4.....	Henry Gassert, County Comr.
Iowa.....	Spencer.....	Oct. 6, 6 p.m.....	Constr. 20,000, more or less lin. ft. permanent sidewalks.....	R. T. Turner, City Clerk.
Missouri.....	Linneus.....	Oct. 6.....	Constr. cement sidewalks in various streets.....	J. H. Phillips, St. Comr.
Ohio.....	Wyoming.....	Oct. 6, noon.....	Constr. cement sidewalks on both sides Crescent Ave.....	W. A. Clark, Village Clerk.
New Jersey....	Bogota.....	Oct. 10, 8 p.m.....	Grading and macadamizing Maple Street.....	Wm. N. Smith, Mayor.
Wisconsin.....	Superior.....	Oct. 15.....	Constr. 3,000 lin. ft. curb; 1910 cu. yds. sand fill, 1,711 cu. yds. crushed rock and 27,177 gals. asphalt.....	Dan'l. J. Arris, Pres. Bd. Pub. Wks.
New Jersey....	Westfield.....	Oct. 16, 8 p.m.....	Furnishing and laying 1,200 lin. ft. bluestone flagging.....	Charles Clark, Town Clerk.
Illinois.....	Berwyn.....	Oct. 17, 8 p.m.....	Constructing cement sidewalks on 26th St.....	W. V. Aikman, Secy. Bd. Loc. Imp.
Ohio.....	Toledo.....	Oct. 17, 10 a.m.....	Grading, draining and macadamizing county road.....	C. J. Sanzenbacher, County Auditor.
SEWERAGE				
Pennsylvania...	New Brighton...	Oct. 1.....	Constr. 1,300 ft. of 8-in. sewer.....	F. C. O'Rourke, Boro. Secy.
New York.....	Buffalo.....	Oct. 6, 11 a.m.....	Constr. a 15 and a 10-in. tile sewer in Wende St.....	F. G. Ward, Comr. Pub. Wks.
Ohio.....	Dayton.....	Oct. 9, noon.....	Constr. storm sewers in Euclid Ave.....	J. C. Ely, Dir. Pub. Service.
Iowa.....	Mason City.....	Oct. 9.....	Constr. 2 sewage purifying plants.....	J. H. McEwen, City Clerk.
WATER SUPPLY				
Illinois.....	Lake Bluff.....	Sept. 28, 7:30 p.m.....	Constr. pneumatic water works system.....	D. Witherstine, Village Clerk.
Michigan.....	Grand Rapids.....	Oct. 5, 8 p.m.....	Laying water mains in several streets.....	E. H. Christ, Pres. Bd. Pub. Wks.
Ohio.....	Oxford.....	Oct. 6, noon.....	Constructing extension to water works.....	D. P. Beaton, Village Clerk.
Ohio.....	Dayton.....	Oct. 9, noon.....	Constr. approximately 110 water connections on Phillips Ave.....	J. C. Ely, Dir. Pub. Service.
BRIDGES				
Arkansas.....	Ashdown.....	Oct. 9, 2 p.m.....	Erecting steel bridge over Walnut Bayou.....	Town Clerk.
Pennsylvania...	Media.....	Oct. 9, 10 a.m.....	Building new bridges and repairing present bridges.....	County Commissioners.
Virginia.....	Richmond.....	Oct. 9, noon.....	Constr. 5 steel bridges in Sussex Co.; also steel stringers for 1 bridge.....	P. St. J. Wilson, St. Hwy. Comr.
LIGHTING AND POWER				
Ohio.....	Akron.....	Sept. 30, noon.....	Supplying gas electric or gasoline lighting for streets and public places.....	City Council.
Kansas.....	Syracuse.....	Oct. 4, 6 p.m.....	Constructing electric light and water systems.....	R. M. Van Duzer, City Clerk.
Montana.....	Butte.....	Oct. 12, 10 a.m.....	Furnishing lighting fixtures for new county court house.....	J. M. Riley, Chm. Bd. Co. Comrs.
Massachusetts...	Boston.....	Oct. 24, noon.....	Furnishing and erecting gas post extensions and installing inverted gas lamps on certain streets.....	L. K. Rourke, Comr. Pub. Wks.
MISCELLANEOUS				
Ohio.....	Cleveland.....	Oct. 2, noon.....	Furnishing fire department with one first class hook and ladder truck complete; equipped with 65 ft. aerial ladder also 2 second size steam fire engines.....	F. G. Hogan, Dir. Pub. Safety.
Ontario, Can...	North Bay.....	Oct. 3, 4 a.m.....	Constructing breakwater at North Bay.....	R. C. Desroches, Secy. Dept. P. Wks.
Ohio.....	Toledo.....	Oct. 6, noon.....	Furn. Portland cement, concrete, sand, reinforcing steel rods and lumber, etc.....	Board Park Commissioners.
Utah.....	Eureka City.....	Oct. 9, 8 p.m.....	Remodeling county jail in Eureka City.....	E. W. Redmond, City Recorder.
Ohio.....	Cleveland.....	Oct. 10, noon.....	Bldg. new bath house at Edgewater Park.....	A. B. Lea, Dir. Pub. Service.
Ohio.....	Marion.....	Oct. 15, noon.....	Furn. 1 motor fire engine, 1 motor chemical and hose wagon and 1 motor chief's car.....	Jos. A. Knapp, Dir. Pub. Safety.
California.....	San Francisco...	Nov. 1, 3 p.m.....	Furnishing and delivering 43 double and pay-as-you-enter type, closed steel motor cars complete: 4 extra trucks complete with axles, wheels and motors.....	Board Public Works.

STREET IMPROVEMENTS

Elba, Ala.—Coffee County has voted in favor of \$100,000 bond issue for making good roads.

New Britain, Conn.—Board of Public Works has recommended appropriation of \$1,000 for grading of N. Stanley st.

Indianapolis, Ind.—Resolutions have been passed for following improvements: 28th st., from Talbot ave. to Meridian st., with improved roadway. Pennsylvania st., from 28th st. to 27th st., with improved roadway. Capitol ave., from 25th st. to Crown Hill drive, with improved roadway.

Louisville, Ky.—Construction of sidewalks in various streets has been authorized by Board of Public Works.

Taunton, Mass.—Bids have been received for improvement work on Broadway from Swan's barn to Raynham line, but contract has not yet been awarded.

Fulton, Mo.—Citizens have voted in favor of \$100,000 bond issue for permanent rock and gravel roads.

Jersey City, N. J.—Street and Water Board has passed resolution directing Barber Asphalt Paving Co. to repave Bergen ave. from Communipaw ave. to Fairmount ave.

Jersey City, N. J.—Specifications for widening of driveway in Summit ave., from Five Corners to Paterson ave., have been adopted by Street and Water Board. They call for taking of 18 in. from either sidewalk except in such places as present width of sidewalk will not permit of such widening.

Long Branch, N. J.—Election will be held Nov. 7 for voting on \$120,000 bond issue for resurfacing asphalt pavements.

North Hackensack, N. J.—Riverside Borough will have special election on Oct. 9, at which voters will vote on proposed bond issue of \$4,000 for macadamizing of Summit ave.

Altoona, Pa.—Resolution has been passed authorizing grading of Crawford ave., from Kettle st. to 7th st.

Shamokin, Pa.—Petition is being considered asking that W. Arch st., from First st. to Wildwood ave., be paved.

Columbia, S. C.—City Council and Commission on State House and Grounds have decided to pave 2 driveways around State House with bitulithic; cost, \$4,800.

Ford Mill, S. C.—Election will be held for voting on bond issue of \$4,000 for improvement of Main st.

Nashville, Tenn.—Board of Public Works is preparing to advertise bids for construction of several thousand feet of additional granitoid curbing and sidewalk scattered on portions of McGavock, Troost, Calhoun, East Belmont and Scott sts.

Dallas, Tex.—City is considering remacadamizing of Hughes Circle.

Houston, Tex.—Voters of Houston Heights favor proposed bond issue of \$180,000 for paving of Houston Heights blvd.

Alexandria, Va.—Paving of various streets with vitrified brick has been authorized.

Radford, Va.—Council is considering plans for street improvements authorized under recent bond issue.

Richmond, Va.—City Council is considering petition for \$5,000 toward proposed Gordonsville-Richmond-Old Point highway.

Walla Walla, Wash.—Paving of Palouse st. is being considered.

CONTRACTS AWARDED

Covington, Ind.—By Commissioners of Fountain County, for construction of Smith et al gravel road in Shawnee Township, to Elbert F. McKee, for \$7,640.

New Orleans, La.—By Highways Department, for construction of road in St. Bernard Parish, distance of 3 miles to Marcel Garsand, at \$12,637.60.

Elkton, Md.—By Cecil County Commissioners, for building two miles of road from Gilpin's Bridge, Elkton to Barksdale, to F. C. Forsythe, of Belair.

Newark, N. J.—By Board of Works, for repaving of Market st. with bitulithic, to Standard Bitulithic Co., at \$73,744.

Utica, N. Y.—By Board of Contract and Supply, for sweeping paved streets of city for four years, to Harry W. Roberts Co.

Pomeroy, O.—By County Commissioners, for paving with brick one mile of pike in Scipio Township, to Geo. Bowers, of Middeport, for \$11,456.

Hugo, Okla.—By County Commissioners of Choctaw County, for construction of 27 bridges at approximate cost of \$15,000 to Midland Bridge Co., of Kansas City, Mo.

Dorranceton, Pa.—For paving Butler st. with wood block, to United States Wood Preserving Co., Franklin Bank Bldg., Philadelphia.

Lynchburg, Va.—By Council, for construction of nearly 1 mile of concrete sidewalk in West Lynchburg, to Jones & Adams at \$1.04 per sq. yd.

BIDS RECEIVED

Wellington, Kan.—For paving, curbing and guttering Washington ave. with asphaltic concrete on a concrete base: (a) E. M. Eby, Wellington; (b) Kaw Paving Co., Topeka; (c) Cleveland Trinidad Paving Co., Wichita; 1,499 cu. yds. excav., (a) 32c., (b) 35c., (c) 35c.; 98 cu. yds. filling, (a) 10c., (b) 10c., (c) 10c.; 13,635 sq. yds. rolling, (a) 1c., (b) 1½c., (c) 2c.; 5,476 ft. curb and gutter, (a) 55c., (b) 57c., (c) 60c.; 11,812 sq. yds. asphalt concrete paving, (a) \$1.43, (b) \$1.50, (c) \$1.58; 380 concrete headers, (a) 20c., (b) 20c., (c) 25c.; 860 ft. standard No. 1 sewer pipe, (a) 60c., (b) 55c., (c) 58c.; 430 ft. standard No. 1 sewer pipe, (a) \$1, (b) 95c., (c) 98c.; 210 ft. standard No. 1 sewer pipe, (a) \$1.30, (b) \$1.25, (c) \$1.25; 4 manholes, (a) \$30, (b) \$30, (c) \$30; 5 catch basins, (a) \$18, (b) \$20, (c) \$21.

Portsmouth, Va.—For grading streets as follows: Lewis Lawson—Elm ave., \$1,746; Prentiss ave., \$1,987; Duke st., \$2,045; Linden ave., \$1,524; Green st., \$619; 4th st., \$520; 5th st., \$377; Naval pl., \$1,117; Madison st., \$440; Edwards st., \$237. Dalby-Nottingham Co.—Elm ave., \$1,832; Prentiss ave., \$1,992; Duke st., \$2,836; Linden ave., \$1,811.50; Green st., \$1,004; 4th st., \$924.50; 5th st., \$475; Naval pl., \$1,387.50; Madison st., \$463.40; Edwards st., \$251.40. R. B. Denby—Elm ave., \$1,180; Prentiss ave., \$1,690; Duke st., \$2,040; Linden ave., \$1,260;

Green st., \$670; 4th st., \$300; 5th st., \$590; Naval pl., \$894; Madison st., \$350; Edwards st., \$200. F. J. McGuire, curbing and guttering, 45c. per lin. ft.; Wainwright bar, 25c. additional; concrete supports, 60c.; concrete walks, 89c. a sq. yd.; 24-in. T. C. pipe, \$2.20; 15-in. T. C. pipe, \$1.35; catch basins, \$38; concrete culvert, \$8; 4-in. broken stones, 34c. per sq. yd. Lewis Lawson—Curbing and guttering, 59c. a lin. ft.; Wainwright bar, 30c. additional; street name in curb, 50c.; street name in brass in curb, \$2; concrete supports, 60c.; concrete walks, 90c. sq. yd.; 24-in. T. C. pipe, \$2; 15-in. T. C. pipe, \$1.50; catch basins, \$35; concrete culverts, \$6; 4-in. broken stone, 33c. per sq. yd. Perry Ruth—Curbing and guttering, 57c. per lin. ft.; Wainwright bar, 30c. additional; concrete supports, 50c.; concrete walks, 97c. a sq. yd.; 24-in. T. C. pipe, \$2.03; 15-in. T. C. pipe, \$1.25; catch basins, \$40; concrete culverts, \$5.40.

Spokane, Wash.—For paving North Wall st. as follows: R. S. Blome & Co., granitoid concrete, \$94,500; Spokane Bitu-Mass Co., bitu-mass, \$62,300; Barber Asphalt Co., asphalt, \$68,510; Hassam Co., hassam, \$69,800; J. F. Hill, asphalt, \$65,926; Spokane Asphalt-Macadam Co., \$56,700; Western Asphalt Co., \$70,015; Municipal Asphalt Plant, \$55,220.

SEWERAGE

Waterloo, Ia.—City Council has ordered construction of sewers in various streets.

Lynn, Mass.—Two bond issues, one for \$5,000 to pay for trunk sewer to be laid from contagious hospital and tuberculosis sanatorium to Hudson sq., and other for \$15,000, Lynn's share of the Charles River basin improvement tax, were proposed in Municipal Council last week by Finance Commissioner Turnbull and ordered to be advertised under provisions of charter.

Plainfield, N. J.—City Council has appropriated \$750 and engaged engineer to inspect local sewage disposal beds in western end of city with view to enlarging same or equipping them in such a way that they will properly take care of city's increased flow of sewage.

Sea Cliff, L. I., N. Y.—Petition has been received asking for election for voting on establishment of permanent sewer system and sewage disposal plant; estimated cost, \$115,000 to \$120,000.

Cincinnati, O.—City is considering construction of sewer on Belmont ave., College Hill.

East Cleveland, O.—Bids will be received until 12 noon, Oct. 24, by Clerk of City, 1413 Williamson Bldg., for purchase of 37 bonds of \$500 each for construction of sewer in Hayden ave.

Pleasant Ridge, O.—Bids will be received until 12 noon, Oct. 28, by Clerk of Village for purchase of \$15,000 bonds for purpose of paying cost of constructing sewers.

St. Elmo, Tenn.—Voters have authorized \$80,000 bond issue to complete fund of \$100,000 for construction of system of sanitary and storm water sewers.

CONTRACTS AWARDED

Belvidere, Ill.—By city, for extension of sanitary sewer system, to S. Vandewalker.

Des Moines, Ia.—By Council, for construction of sewer at 29th and High sts., at \$1.03 per lin. ft.

Lake Charles, La.—By Sewerage Board, for construction work of sewerage system as follows: Southern Asphalt & Construction Co., \$98,979.97; septic tanks, Kelly, Jones & Allen Co., of Opelousas, \$18,693; castings, \$25,250; pumps and engine, A. M. Lockett Co., of New Orleans, \$1,250.

Racine, Wis.—By city, for construction of sewer in Case Addition, to Andrew Thomssen, at \$9,563.39.

BIDS RECEIVED

Duluth, Minn.—For construction of sanitary sewer in 6th alley, between 2d and 3d sts.: M. Fitzgerald, \$1,234.70; George R. King, \$1,362; Johnson & Erickson, \$1,473.10; Charles Eklund & Co., \$1,840.20; the bids of C. Angel and P. McDonnell were incomplete. A sanitary sewer in 4th alley, between 8th and 9th aves. west: C. P. McLean, \$319.20; George R. King, \$393.80. Sanitary sewers in 5th st., between 5th and 6th aves. west: C. R. McLean, \$690.50; Charles Eklund, \$816; George R. King, \$900.25; M. Fitzgerald, \$931.50. Sanitary sewer in 7th alley, from 39th ave. to a trunk sewer in 41st ave. west: Aron Olson, \$1,379.88; George R. King, \$1,647.40; Adam McAdam, \$1,825.60; W. E. Kern, \$1,776.52. Sanitary sewer in 7th alley, between 4th and 5th aves. east: M. Fitzgerald, \$334.06; Johnson & Erickson, \$362.21; Gust Hiner, \$397.79; Aron Olson, \$440.70; George R. King, \$451.95; C. R. McLean, \$478.90. Sanitary sewer in 4th st., from 17th to 18th aves. east: J. D. O'Connell, \$1,495.30; George R. King, \$1,523.25; Chas. Eklund, \$1,717.66; M. Fitzgerald, \$1,806.55; E. En-

gel, \$1,883.53. Sewer in Grand ave., from 42d to 41st ave.: W. E. Kern, \$685.50; George R. King, \$723; Adam McAdam, \$804; C. R. McLean, \$813.50; E. Engel, \$953. Sanitary sewer in 4th st., between 42d and 41st aves. west: Aron Olson, \$507.96; C. R. McLean, \$582.50; Adam McAdam, \$604.75; George R. King, \$691.75; W. E. Kern, \$772.75. Sanitary sewer in 54th alley, between block 1 and 2 West Duluth division without outlet in Wadena st. sewer: Adam McAdam, \$262.05; W. E. Kern, \$298.60; George R. King, \$301.60. Sanitary sewer in right-of-way between 4th and 5th st., in 7th ave. west to a point 75 ft. east of 8th ave. west, with outlet in sewer in 4th st.: C. R. McLean, \$956.40; George R. King, \$1,167. Sanitary sewer in 63d alley, from Roosevelt st. to Grand ave., and in 66th and 67th alleys west, from Main to Polk st., and 64th and 65th alleys, from Roosevelt to Polk, with outlet in Polk, and from 67th alley west to Grand, and in Grand to outlet in 61st ave. west sewer: P. McDonnell, \$8,632.50; Gust Hiner, \$8,856.50; C. R. McLean, \$9,031; Charles Eklund, \$9,171.50; George R. King, \$11,190; W. E. Kern, \$12,210.50. Sanitary sewer in 6th alley, from 40th to 41st aves.: Gust Hiner, \$428; George R. King, \$530; C. R. McLean, \$573.20; W. E. Kern, \$701.60; Adam McAdam's bid was incomplete.

WATER SUPPLY

Inwood, Ill.—Water Works system will be installed.

Owensville, Ind.—Municipal water system is being considered.

Lecompte, La.—Appropriation has been made for improvements to water system.

Dover, N. H.—Resolution has been passed authorizing purchase of carload of water pipes.

Honeyville, Utah.—Bond issue of \$12,000 has been voted for installation of water works.

Santaquin, Utah.—Election will be held for voting on \$20,000 bond issue for water works system.

Manitowoc, Wis.—Water works plant of city will become property of the municipality on Oct. 2; contract price being \$247,500.

CONTRACTS AWARDED

La Cygne, Kan.—By city, for construction of water works and electric light plant, to Thogmartin & Gardiner and F. D. Martin.

Marquette, Mich.—By city, for construction of series of storage dams and reservoirs on Dead River to O'Keefe-Orbison Engineering & Construction Co., of Appleton, Wis.

Clarksdale, Miss.—By city, to J. C. Mishler, of Chattanooga, Tenn., for extending water works and sewer systems into Dolan, Oakhurst and Myrtle Hall, suburbs of Clarksdale. Total, \$60,000.

Jersey City, N. J.—By Street and Water Board, for sale of water to Township of Union, Bergen County, for period of 5 years.

Springfield, O.—By city, for furnishing pump to local water works, to Laidow Dunn Co.

Juniata, Pa.—To the Vipond Construction Co., of Altoona, Pa., for constructing 20,000,000-gal. reservoir at \$21,339.

Pittsburgh, Pa.—By Department of Public Works, for coal and ash handling apparatus for Aspinwall pumping station, to Link-Belt Co., at \$25,875.

Dallas, Tex.—By city, for construction of dam up Elm Fork of Trinity River, to Jones & Co., at \$31,900. Tarrant Construction Co. bid was \$56,975.

Ft. Worth, Tex.—By City Commission, for furnishing 2 air compressors for South Side water works plant, to A. M. Lockett & Co., at \$6,966.

LIGHTING AND POWER

Marysville, Cal.—Street lighting system will be improved by installation of arches over street intersections.

Duluth, Minn.—Contract for electric lighting of city has expired, and city is considering question of municipal ownership of electric light plant.

Springfield, O.—City is considering construction of municipal light plant.

CONTRACTS AWARDED

Alabama City, Ala.—Election will be held for voting on \$50,000 bond issue for electric light and water works plant.

La Cygne, Kan.—By city, for construction of electric light and water works plant, to Thogmartin & Gardiner, and F. D. Martin.

Bevier, Mo.—To Fairbanks, Morse & Co., St. Louis, for construction, maintenance and operation of electric light plant.

Newburgh, N. Y.—For furnishing new poles for illumination of Co'den and Water sts., to Ornamental Light Co.

New Lisbon, Wis.—By Common Council, for construction and equipment of electric lighting and water works plant, to Central Construction Co., Oshkosh, Wis., at \$18,000.

Shawano, Wis.—By County Board of Supervisors, for installing light and power system in new \$200,000 Shawano County Insane Asylum, to Central Construction Co., Oshkosh, Wis.

FIRE EQUIPMENT

Chicago, Ill.—Meeting of Fire Committee of City Council has been asked by Alderman Henry D. Capitain to consider additions and improvements to fire-fighting facilities of his ward, the 25th.

Boston, Mass.—City is considering improvements to Fire Department.

Quincy, Mass.—City is considering replacing its horse-drawn fire wagons and engines with automobile pieces.

Newark, N. J.—Bids will be readvertised for construction of 16th Ward fire house.

Binghamton, N. Y.—Council has authorized purchase of apparatus for Fire Department without asking for bids.

Newburgh, N. Y.—Purchase of 2000 ft. of new hose for Fire Department has been authorized.

Rose City Park, Ore.—Erection of fire station on E. 56th st. and Sandy rd. has been authorized.

CONTRACTS AWARDED

Racine, Wis.—By city, for erecting No. 2 fire engine house, to Fred Hanson, at \$5,200. Other bids as follows: Fred Hanson, \$5,200; Holm Bros., \$5,248; L. Poulsen, \$5,394; George Kamm, Jr., \$5,530; Oscar Jensen, \$5,535; C. O. Johnson, \$5,500; L. C. Sorenson, \$5,646; A. C. Kappel, \$5,882; A. C. Harcus, \$5,895; Hans Hansen, \$6,319; J. H. Foxwell, \$6,360; Gerhard Wahlen, \$5,745.

BRIDGES

Hartford, Conn.—Plans have been submitted for steel girder bridges to be constructed across Park River in Bushnell Park, opposite Union Station.

MISCELLANEOUS

Red Bluff, Cal.—Plans for new Court House have been adopted by Supervisors; estimated cost, \$100,000 to \$200,000.

Indianapolis, Ind.—Plans are being considered for erection of city hospital.

Swampscott, Mass.—Bonds to value of \$106,900 have been awarded to Estabrook & Co., of Boston. Issue includes school house, automobile chemical and sewer bonds.

Racine, Wis.—New motor ambulance is recommended for Police Department.

CONTRACTS AWARDED

Santa Rosa, N. M.—By city, for construction of county jail, to B. F. Shane, at \$8,000.

Newburgh, N. Y.—For construction of new house for Mase Hook & Ladder Co., of Matteawan, to James Forrestal Co., for mason and carpenter work, and to W. H. Deisseroth for plumbing and heating, and to Highland Electric Co. for electric lighting and gas piping, at total of \$11,656.77.

Demselth, N. D.—For building North Dakota tuberculosis sanatorium, to Northern Construction & Engineering Co., of Grand Forks, at \$20,772.

Wanted Position

A competent and experienced Water Works Superintendent, qualified to build up revenue and operate plumbing shop. References.

FRED BOSCH, Whitewater, Wis.

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Berger Transit—(Bubble and Arc) nearly new.....\$190.00
Young Transit—(Bubble and Arc) 150.00
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K. & E. Wye Level 15"..... 50.00
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